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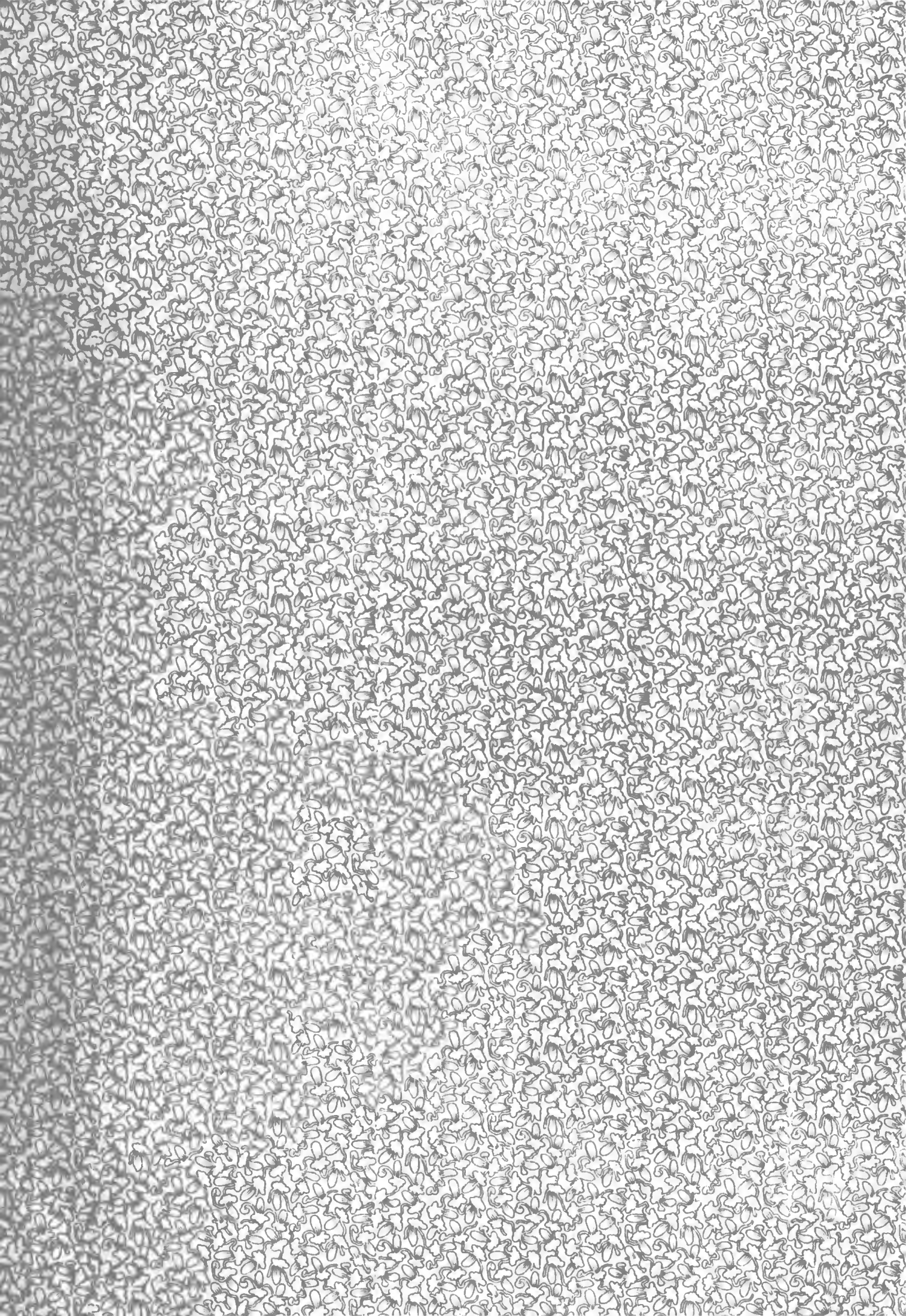
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JULY TO DECEMBER

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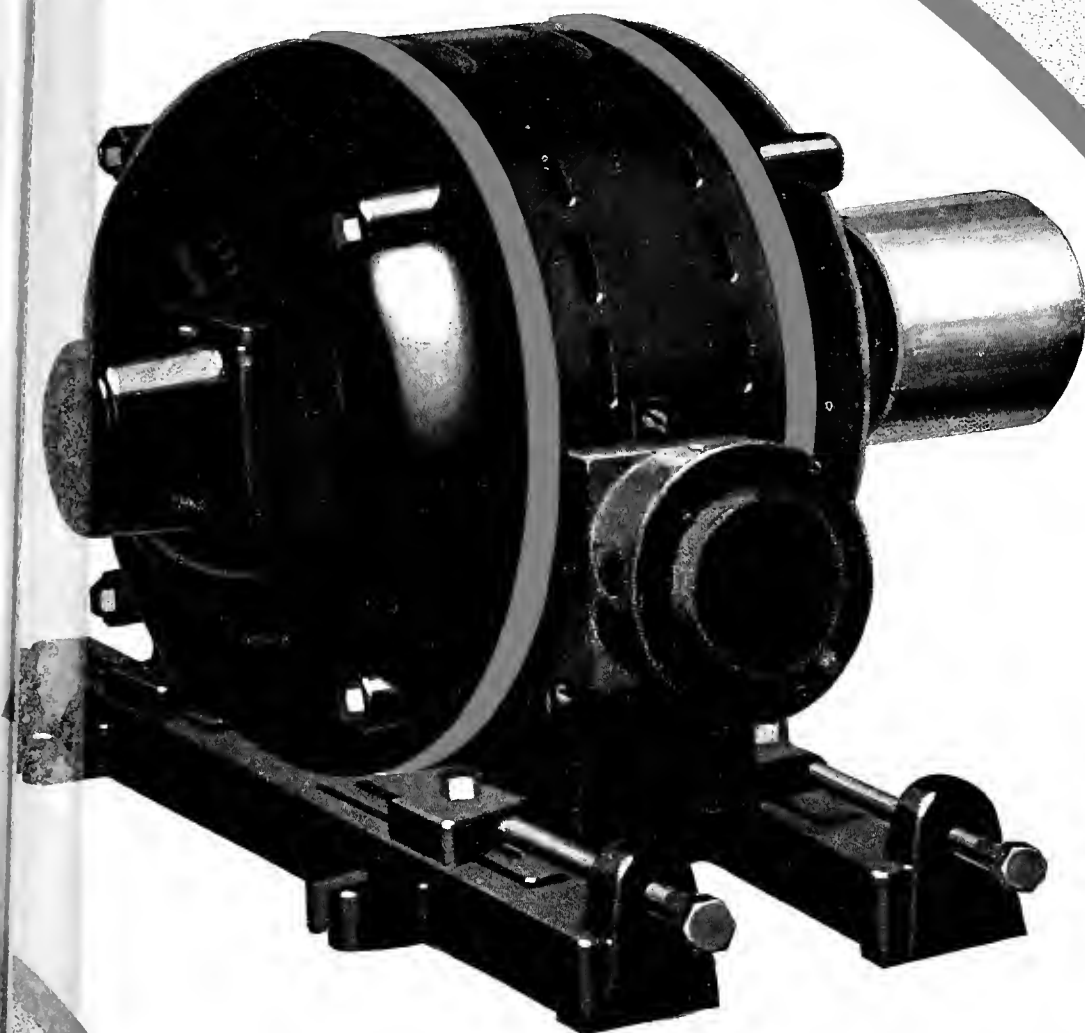
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An Announcement

By the Publisher

WITH this issue, the Journal of Electricity reverts to its former title, dropping "and Western Industry." "Journal of Electricity" has the advantage of simplicity, it is completely descriptive of the editorial purpose of this magazine, and it has a background of many years of honorable service to the electrical industry of the West.

While the editorial field will continue without change, it seems fitting on this occasion to summarize its general purpose. The Journal of Electricity is an electrical paper, first, last and all the time. It is concerned with the three co-ordinate subdivisions, the development of central station power, its application to industry and to the home. Its geographical territory includes the eleven Western states; thus the Journal is a local paper of the West in a sense of the word, and renders an intensified editorial service to those engaged in the electrical industry within those states.

It is vital to the progress of the electrical West that those engaged in the three co-ordinate subdivisions should work together in fullest accord. Their mutual dependence makes this obligatory. To them, the Journal of Electricity offers a medium of publicity through which the broad relationship existing between all problems dealing with the production and application of electrical power may be made clear and convincing to all concerned. It will continue to present, through special departments, the best thought of specialists upon pertinent and timely subjects, as well as rendering a news service invaluable to the industry.

In further evidence of its desire to bring the message of the Electrical West to every individual connected with it, the subscription price of the Journal, beginning with this issue, has been reduced to \$2 per annum.

In the future, this space will be given over to editorial announcements, so that our readers will be advised in advance of the plans of the publishers for issues to follow.

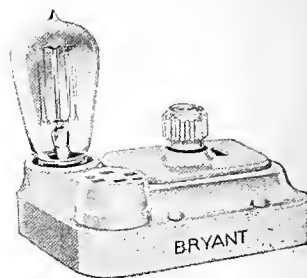
Do a Little Trolling



RETAIL selling is quite often like still fishing. You sit and wait. If the fish are biting, it's great fun—if not, it's misery. Trolling has its advantages. You cover more ground and go where the fish are. Usually you catch bigger fish.

The Bryant Surface Heater Control Combination No. 466 is good bait for trolling. Take it to any laundry, or factory in your neighborhood and show how it saves money and boosts production. Its cost is nominal.

You will probably make several sales and start some new accounts. Worth going after. What?



No. 466



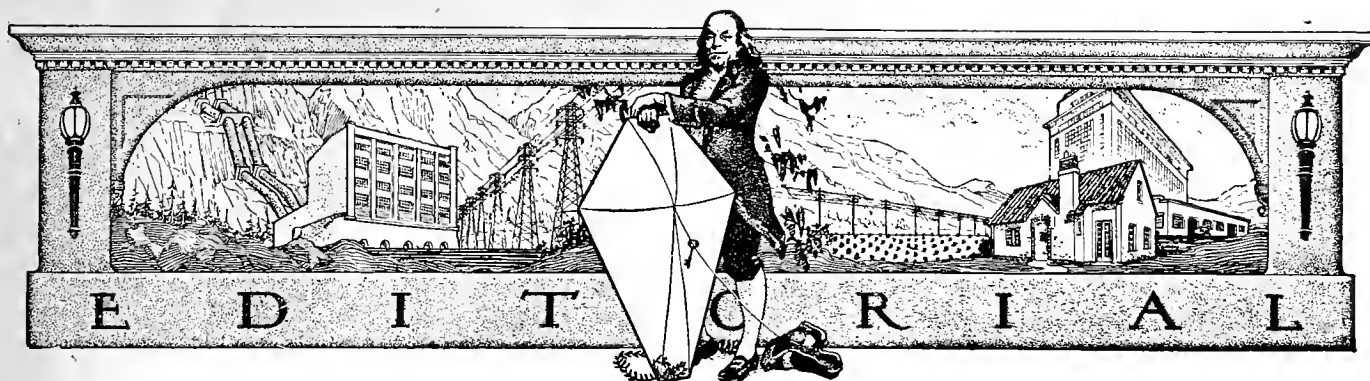
"A Superior Wiring Device for every Electrical Need"

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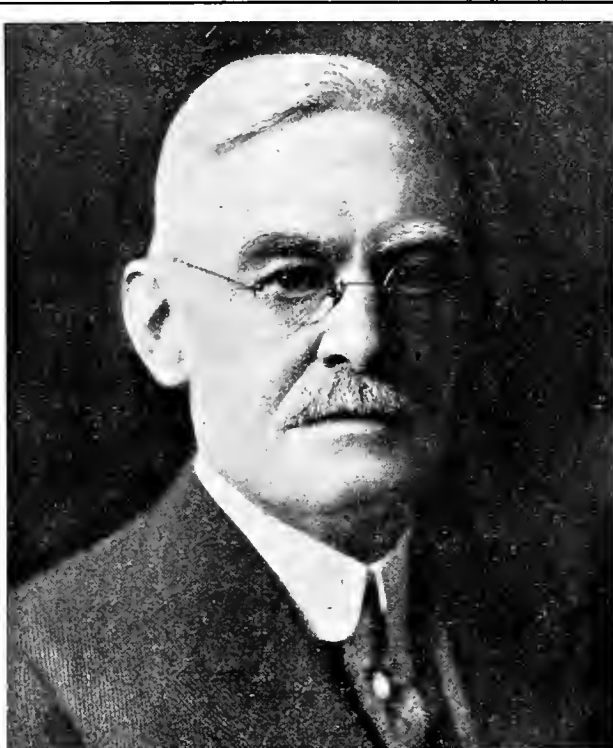


In Memoriam—John A. Britton

IN the passing of John A. Britton, the electrical industry loses a leader endeared to those who knew him and nationally admired and respected for his works and deeds. Continuously since his first connection with the utility industry, he has devoted his energies to the upbuilding of that industry and there is no phase of it which, some time in the past fifty years, has not been enriched by his participation therein.

His early life was not free from financial handicaps but success in late years has been his in large measure. He has been part and parcel of the growth of the electrical industry in the West and has seen it grow from experiment to practical accomplishment. Through his own efforts he has seen electricity become an ever increasing factor in the advance of civilization and the growth and development of the great state which he loved.

Firm in his conviction that the fundamental strength of that state and of the West lay in the orderly progress of the development of its great water powers, and that this progress would be measured by the degree of service which his organization could render to the people, he built a great business on that foundation. To his associates this conception was a constant inspiration and his enthusiasm, energy and clear vision have been



JOHN A. BRITTON

Vice-President and General Manager Pacific Gas & Electric Company,

Whose departure removes from the electrical industry a courageous and vital personality—a successful leader of men.

important factors in the building up and perfecting of the Pacific Gas & Electric Company, one of the greatest public utility organizations in the world. Its success is the product in large measure of the persistent and undaunted courage with which he has sought and successfully secured capital for power developments, coupled with his genius for organization.

His work as a public utility executive is too well known to call for comment. His contribution as a citizen is almost equally familiar to the thousands who knew him as an active figure in all that was best in civic life. His deep-rooted kindness and tact, and his willingness to acknowledge the other man's rights won him a wide personal regard seldom achieved in so busy a life. His title "Dean of the Electrical Industry," was always a term of genuine respect and admiration.

John A. Britton builded both in material things and in the hearts of men. His departure removes from the electrical industry of the West a courageous and vital personality—a successful leader of men. The great organization which he guided stands as a living monument to his ability. His life, in thought, in word and deed is worthy of emulation. He lived to serve; he passed on content that he had made the state he loved a better place in which to live.

Customer Ownership to Obtain Four Hundred Millions of New Capital in 1923

CUSTOMER ownership in the public utility industries of the United States is now about nine years old. It has had an amazing growth, particularly since 1919. The innovation has brought about a remarkable change in the methods of utility financing, and has greatly improved the good-will enjoyed by the service companies.

This term, customer ownership, means the selling of the capital stock of utility companies by these companies direct to the users of their service. When it was started it was regarded as an impossible undertaking by bankers and the majority of executives in these industries—the men who had built up the great service organizations of the country.

Possibly one-third of the new money going into the electric light and power systems of the country this year, will be raised by home financing. This means that two hundred and fifty millions of dollars will be invested in power companies by the people served by the selfsame power companies. It will mean, also, the addition of about 200,000 stockholders to the 1,750,000 citizens who, it is estimated, now have money invested in the public utilities of the United States.

Customer ownership came about by the pressure of necessity. The first two years of the European war made corporation financing very difficult in this country. How to secure the equity investment in growing utilities requisite to additional financing by interest bearing securities became a serious problem. It is to be doubted if customer ownership ever would have been started as a plan to improve public relations. Whether it is more valuable as a medium for popularizing the utilities or as a financing agent is a question. So far, at least, it has been a tremendous force in both these objectives. With customer ownership these two cardinal necessities of utility development proceed hand in hand.

A widespread distribution of partnership is a most substantial means to an end, the building up of a constructive public sentiment. It creates a material interest, which in turn provides incentive for an interest in the welfare and progress of the utility and the industry. It serves to create a desire to learn more about the facts of the utility and the industry, which knowledge should assist materially to dispel the antagonism aroused through a lack of understanding.

Judge Gary Sees No Business Depression Approaching

EVENTS in the past few years have developed a keener appreciation in business men of the effect of general business conditions on their own particular industry or firm. Highly organized statistical departments, whose function it is to delve into masses of figures and extricate for the busy executive the pertinent facts of interest, are a part of all large concerns.

The study of economics is no longer confined to our colleges, but is occupying the attention of trade

associations, chambers of commerce and individuals, who, in the stirring times of the recent business depression, have learned that to be forewarned is to be forearmed. Prognostications and prophecies by these "experts" have occupied much space in the current press and no doubt have caused postponements in some lines of business. Complaints have also appeared of deliberate and unworthy propaganda released with the intention of causing depression.

The remarks of E. H. Gary, in a recent address before the American Iron and Steel Institute, are pertinent and reassuring. Judge Gary said, in part, as follows:

"There has of late apparently been a deliberate and persistent attempt to create an impression that there will be, in the near future, a substantial recession in business activities. Business men generally understand this. The propaganda is inspired by a few short-sighted persons who do not seem to understand that if they could succeed in wrecking the business structure they would themselves be buried in the ruins.

"Of course, as always, conditions may change materially and suddenly, depending upon circumstances, but the necessities of consumers in the United States and of those in foreign countries who are our customers are so great, the population is increasing so rapidly, and the ability to buy and pay for steel, as shown by financial statements, so large, there is within view no reason to suppose there will be, certainly not in the near future, a material slackening in demand and use.

"When one considers the wealth, resources, increasing production and purchasing necessities of this country, the present business outlook is good. And this is said in the face of very heavy burdens of taxation, unnecessary and unreasonable political and social agitations precipitated by those who have nothing financial at stake, the unfortunate troubles pending in foreign countries, and the bugbear of politics."

Statistical studies undoubtedly show unexplainable and contradictory trends, but the soundest analysts including our government statisticians concur with Judge Gary that an immediate or even remote depression is highly unlikely.

An Ambitious and Effective Method of Spreading the Electrical Idea

THE California Electrical Cooperative Campaign has always been in the forefront among institutions of its kind in telling the story of the advantages of electrical household conveniences to the public. Many of the ideas which have originated with that body have been adopted nationally.

The latest advance in its educational drive, described elsewhere in this issue, is the equipping of a traveling exhibit which, in the course of a year, will visit every town of importance in that state. The plans call for the conversion of a standard Pullman coach into a model electric home, containing kitchen, dining room and bedroom. This car will be completely rebuilt to the specifications of the Cam-

paign, and will be equipped to display all of the electrical household appliances in actual operation. Accompanying the Pullman coach will be a rebuilt baggage car containing a model electric laundry, a farm lighting set, an electric pumping plant and a utility farm motor unit.

The cars will be routed on a schedule in the same manner as a traveling show. An advance man will distribute posters and publicity material, and arrangements will be made for central station service and local lecturers and demonstrators. Motion pictures will be shown on a screen on the outside of the cars during the evening hours of demonstration.

It is expected that the effect of the tour will be to materially increase interest in electrical conveniences in the smaller communities in which it is impractical to exhibit an electric home, but which communities, in the aggregate, represent a large potential market.

Western Engineer Produces Book on Nation-wide Power Survey

A survey of the power resources of the United States, nation-wide in its scope, has recently been completed and published by Frank G. Baum, consulting engineer of San Francisco. At a time when the thought of our economists and engineers is turned toward the development in a comprehensive manner of the latent power resources and the economical utilization of the existing ones, this book, "Atlas of U.S.A. Electric Power Industry," offers a method of procedure.

Mr. Baum has divided the country into twelve regional power districts, all of which would be interconnected. The scheme contemplates the transmission of large blocks of power at high voltages and over long distances, and is supported by a wealth of data based on experience and surveys in the field.

The four main power problems confronting the industry are discussed in detail, and a comprehensive plan is presented to remedy them by fitting the present developments into a far-sighted and masterly development program.

Interest Being Displayed in Development of Electric Trucking

THE new business managers of all central stations are on the lookout for new fields of business, but in the West an appliance which uses more electricity in a year than probably any other electric device yet made—the electric truck—has largely been overlooked. The number of cities in which central stations are now actively promoting the sale of electric trucks is fast growing and business developers of central stations are investigating and exploring this field. Central stations in Los Angeles and San Francisco have recently established departments equipped with the necessary expert talent to give advice on problems connected with electric truck transportation.

The electric truck and car industry has not been organized to the same degree as many other branches of the industry. Manufacturers of parts and completed trucks comprise companies of varying inter-

est and these companies have never been merged together in well organized, specialized associations, nor have they been able in the past to find a common organization to attain their desired ends. This also is being remedied by the establishment of organizations outside of the electrical industry to promote the use of electric trucks.

Although central stations of the West are more advanced in many ways than those of eastern states, in the development of an electric trucking load they are far behind. It is pleasing to note that these conditions are being rapidly remedied and that the increase in the number of electric trucks in the western states will probably in the next few years be an appreciable one.

The Electric Truck and Car Bureau of the Commercial National Section of the National Electric Light Association has done much to demonstrate the suitability of the electric truck for frequent-stop, short-haul deliveries, particularly in the congested areas of our larger cities. Recognizing the need of education, the central station companies in California, in cooperation with the above named agency, will provide a school in the next few months in which representatives of the central station companies will be given instruction on the subject of electric trucks, their field, manufacture, operation, economy and reliability, with a view to creating electric truck departments where information and advice will be available.

"As professional engineers have good reason to know, the installation of superpower stations and systems is not hindered by questions of engineering but by weightier matters of finance, law, economics, politics and policy. These handicaps still beset us, and when they are once disposed of, superpower stations will spring up with remarkable rapidity."—M. H. Aylesworth, Executive Manager, N.E.L.A.

Each branch of the industry benefits from successful residence lighting activities. With the prospect of several million homes being wired in the next three or four years, it is not difficult to visualize the hundreds of millions of dollars' worth of business that will accrue to the various branches of the industry, not to mention the labor and construction work that will naturally be involved.

"I wish that the executives of the companies and their employees as well could be put upon the same plane of understanding upon what part they play with their consumers and the public as that of the grocery man who meets you smilingly at the counter and hands you out what you want."—John A. Britton.

"The greatest interest in the utility business does not lie in the operator, but lies in the public. Every man and woman in the organization of an electric light and power company should thoroughly understand the importance of a favorable public opinion toward this great industry all over the nation."—Martin J. Insull.

CURRENT COMMENT



Plans for the amalgamation of all of the hydroelectric systems in Japan under one huge company have been announced in news dispatches from the Nip-

Power Companies of Japan Plan Amalgamation Steps are being taken for the formation of one central station company which will direct all other similar businesses in the country, according

to the report. Efficiency of operation of existing plants and a co-ordinating of the generating and transmission facilities are given as the reasons for the proposed change. It is pointed out that there is considerable duplication of effort in some sections of the country while others have no electrical service and that the present companies both privately and state owned are operating at a disadvantage. According to the dispatch, most of the leading companies have warmly welcomed the proposal and have pledged their cooperation in bringing the scheme to a successful conclusion.

It is also planned to form several new companies to develop existing water powers and to extend service into districts where there is a market for the power. These companies will also come under the supervision of the proposed parent company. Japanese engineers have been spending considerable time in the United States during recent years for the purpose of studying the organization of some of the major American companies.

The step which is being taken by the Japanese utilities is in advance of anything definite which has been undertaken by the American central stations. While there have been many suggestions regarding superpower systems and the like in this country, such projects are far from consummation. While it is true that the area of Japan is limited, the power consumption is as great as in some districts which have been designated for superpower systems in America.

Beginning in July or August, the United States air mail will inaugurate continuous service between New York and San Francisco, negotiating the 3,000 miles

Electricity Is to Aid Mail Service Airplane Pilots intervening in 28 hours, according to Postmaster General New. It is important to note that electricity will play an important part in the scheme which will

make this service possible, for night flying will be necessary to achieve the time record which has been set by the department. In his statement regarding

the continuous service, for which a year of careful preparation has been made, Postmaster General New said:

"The air mail beacons will be quite different from the shore lighthouse beacons which guide the ships of the sea. To suit the needs of ships of the air they will swing around on the top of their towers, throwing a beam three degrees above the horizon, three complete revolutions being made every minute. Pilots can easily pick up these giant beacons and guide their planes to the field. The lights will be operated only at hours when a plane is expected.

"Not depending alone on terminal lights, the Post Office Department is locating less powerful beacons every twenty-five miles along the route. Like their larger brothers, they will also swing around the horizon, but their visibility is limited to about thirty miles. These smaller beacons will mark the emergency landing fields to which a pilot can descend in case of necessity.

"As a safeguard for the pilot flying at night in a low 'ceiling'—that is, when the clouds hang low—flashing traffic lights, similar to those placed on streets, will be placed on the ground every three miles along the route. These lights will be directed toward the skies instead of along the ground. This will enable a pilot who might lose sight of the field beacons to trace from his plane several thousand feet in the air a narrow line of light stretching for miles over the earth.

"Millions of people in the Middle West will nightly witness an artificial aurora borealis, visible fully fifty miles from its source under good atmospheric conditions, when this night service of the air mail gets under way. This will be created by sweeping lights which will be established on the five regular fields, Chicago, Iowa City, Omaha, North Platte and Cheyenne. Each of these beacons will have 600,000,000 cp.

"As a result of the preparations undertaken during the last twelve months by the Division of Air Mail, the night flights between Chicago and Cheyenne, Wyo., will be made under conditions which offer scarcely more hazard than day flying. The pilot will be guided by a pathway of powerful beacons capable of piercing through difficult atmospheric conditions, pointing the way unerringly over the prairie to the terminal fields. Each plane will carry powerful searchlights available for forced landings in case of necessity. Emergency fields have been located and lighted every twenty-five miles on the route. In ad-

dition to these precautions and many others the practicability of night flying is insured by the natural advantages of the terrain over which the pilots must guide their planes. The plains country is, of course, noted for its levelness, fortunately providing natural landing fields, while the lack of humidity in the air lends this route to the illumination plan.

Buildings and other obstacles at the landing fields will be marked with red beacons to aid in negotiating a landing. Pilots will fly at a height which will make it easy for them to volplane to the nearest emergency field, should the engine go dead.

Mr. New said that since the department had anticipated a general use of the service by the public, it was regarded as probable that a special airplane stamp would be issued, a stamp which would be sold at a price commensurate with the service.

Air mail service has been in operation in the United States since May 15, 1918, when the Washington-New York route was established. Two and a half years ago a transcontinental route was undertaken, but it was not a through service, its purpose being to advance the mails.

With a total of 46,000 refrigerator cars, already provided for, California carriers will be in a much better position to handle the heavy movement of

Car Shortage fruit and other products requiring refrigeration from California
Will Not Affect points to eastern destinations, in
California 1923, than they were last year, according to a survey of car conditions made by Examiner W. J. Handford of the Service Department of the State Railroad Commission.

Northern fruit growers, anticipating a much heavier production and crop movement this year than last, appealed to the Railroad Commission for advance information as to car accommodations to handle their products, and for assistance in arranging for adequate car service to avert a recurrence of the extraordinary car shortage in 1922, due to the shopmen's strike and other conditions.

The Railroad Commission was able to render effective service to California shippers in 1922 in arranging for refrigerator cars to move their products, and at one period Examiner Handford ascertained cars were coming in faster than the producers were able to utilize them, such was the response of the transportation companies to the efforts of the Railroad Commission and other agencies to save the perishable fruits which were threatened by an initial car shortage due to the strike.

In his survey of conditions this year, submitted by Examiner Handford to President Seavey of the Railroad Commission, Mr. Handford stresses the importance of cooperation and coordination by the shippers and producers with the transportation companies, if the full benefit of the service, which is being arranged for their accommodation, is to be obtained.

The question of movement of crops is exceedingly important in California, for with agriculture

one of the principal sources of income, the prosperity of the entire state is involved in any situation which might work with detriment to the farmer.

The annual report of the Society for Electrical Development on the prevalence of fires of electrical origin and on the property losses attributable to such fires for the year 1921—the latest

Number of Fires year for which complete returns
of Electrical are available—brings out a num-
Origin Decreases ber of points of particular and pertinent interest. In the case of

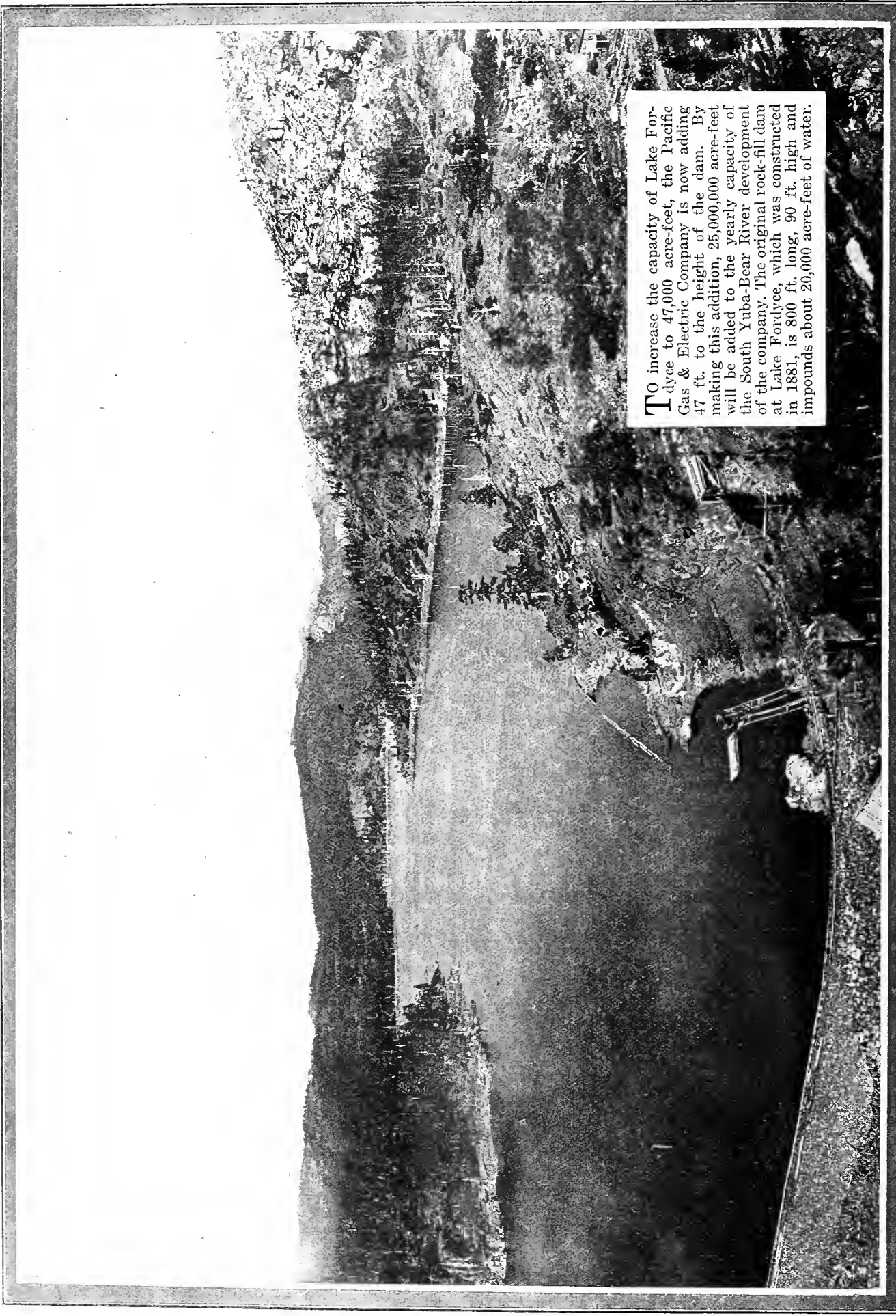
both electric fire ratios—the ratio of fires of reputed electrical origin to all residence fires—and electric fire loss ratios—the ratio of property losses occasioned by fires of reputed electrical origin to those of all residential fires—a material improvement is apparent, over the records for the previous year. The general fire ratio for the country has been reduced to 2.23 from 2.44 in 1920, and the general fire loss ratio to 2.49 from 2.83.

Such an improvement does not tell the complete story, however, for the general ratios are numerical averages which do not portray the liabilities, or risks attributable to electrical fires. Detailed analyses of a graphical character are presented in the study which show that in two out of every three communities the prevalence of fires of reputed electrical origin and the property losses due to electrical fires are substantially less than indicated by either the numerical averages for communities of similar size or those for the country at large. Statistics are also presented, demonstrating that the extension of electrical service in residences and commercial buildings is proving an effective fire preventive and is not a hazard from the point of view of increasing fires or fire losses.

Reference is also made in the report to an independent study of the electrical fire loss records maintained by the National Board of Fire Underwriters—covering the period of 1915-1921—which shows:

1. That the extension of electric service is not, and never has been, accompanied with a corresponding increase in property losses attributable to fires of electrical origin.
2. That since the cessation of the emergency construction necessitated during the war period and the subsequent essential reconstruction there has been a marked and consistent reduction in electrical fire losses.
3. That while there has been such marked decrease in electrical fire losses during a period in which the extension and use of electrical service has greatly increased, a slight increase is also apparent in the electrical fire losses per unit of electrical consumption when the use of electric energy has decreased, as it did in 1921.

This confirmation of the claims advanced by those cognizant with the safety of electric service as now supplied is particularly noteworthy, as is also the fact that the electrical fire loss ratio for 1921 presented by the Society is exactly the same as a similar ratio based upon the National Board of Fire Underwriters' records recently made public.



To increase the capacity of Lake Fordyce to 47,000 acre-feet, the Pacific Gas & Electric Company is now adding 47 ft. to the height of the dam. By making this addition, 25,000,000 acre-feet will be added to the yearly capacity of the South Yuba-Bear River development of the company. The original rock-fill dam at Lake Fordyce, which was constructed in 1881, is 800 ft. long, 90 ft. high and impounds about 20,000 acre-feet of water.

Interdependence of Industry Is Keynote of Pacific Coast Convention

THE interdependence of all western industry and the importance of the electrical group in the development of California was the keynote of the seventh annual convention of the Pacific Coast Electrical Association, held at the Fairmont Hotel, San Francisco, June 19-22, 1923. Approximately 600 delegates and guests participated in the meetings and the interest and enthusiasm displayed in the discussions marks the gathering as one of historic importance in the history of the Association.

The first general business meeting on the morning of June 20 was opened by an address of welcome delivered by J. Emmet Hayden, supervisor of the City and County of San Francisco, who extended, in the name of Mayor James Rolph, Jr., the freedom and hospitality of the city to the delegates and guests. Mr. Hayden spoke of the Hetch Hetchy development of the City of San Francisco and closed his remarks with the statement that "California's real power resources and possibilities have hardly been touched. The development of power is not only of great importance for progress, it is educational as well. Each and every new step in such development makes for another step forward toward that ultimate perfection of service rendered mankind."

President's Report

In his report, President James B. Black emphasized the importance of the work of the association among the employee members. He stated that the success of the association rests with such members and that the organization is endeavoring to work from the bottom up, rather than from the top downward. He reviewed the activities of the various committees and pointed out the progress which has been made in placing in the hands of the smaller units of the organization information on methods and procedure developed by the specialists in the larger companies. He reviewed the progress which has



L. M. KLAUBER

General Superintendent of the San Diego Consolidated Gas & Electric Company, elected President of the Pacific Coast Electrical Association for the coming year.

been made in hydroelectric and steam generating construction during the past year and stated that the supply of power available at the present time is sufficient to meet the growing demands of the state for the time being at least. In closing, Mr. Black said:

"Today the stocks of California hydroelectric utilities are owned by approximately one hundred thousand shareholders. This form of real public ownership with private management, under proper governmental regulation, has successfully passed the most severe tests. The public as stockholders, and through its duly constituted regulatory agencies, retains complete control of the companies' activities, while the deadly effect of political operation, which stifles resourcefulness, initiative and incentive to create on a large scale, is eliminated.

"The electrical industry, and by electrical industry I mean every man or woman who has to do with the production of the equipment necessary to create this giant force, who operates the great companies which produce and distribute it to home, farm and factory, who installs the wiring in order that it may be conducted to the

lamp, motor, range or heater, who manufactures and sells the equipment which enables this force to be converted into power, light or heat at the will of the consumer, has emerged in the western states, and particularly in California, as one of the greatest aids to the development of the vast resources of this Pacific Empire. We should fully realize the responsibility which rests upon us, and by the performance of our individual work, create the confidence necessary for the carrying forward of our common task."

The feature of this session was the address by Carl D. Jackson, counsel for the National Electric Light Association, New York, on "Commission and Court Decisions in Connection with Public Utility Service." Valuations for rate making purposes and the treatment of retirement or depreciation reserves in connection with such valuations were the topics stressed in his speech. In tracing the trend of regulatory legislation, Mr. Jackson presaged some of the difficulties which are likely to arise in the distribution of Colorado River power when he said:

"It is possible that the future will develop some interesting questions connected with the transmission and distribution of electricity generated in one state and in part or in whole used or consumed in another state. It does not appear to be questionable but that such delivery of energy is inter-

state commerce. The federal government has exercised its rights under the Interstate Commerce laws in this respect only in connection with water power development under the Federal Water Power Act. A brief examination of bills proposed in various legislatures in the country demonstrates clearly that there is some movement in some states to establish the doctrine by legal enactment that a state has the right to curtail or prohibit the transmission of electric energy generated in its own borders to communities in other states. Now in this day and generation a greater folly as a matter of public policy is hard to conceive, and yet in some states there is a very strong movement in this direction. It can well be illustrated by the attitude of the present administration in the state of New York. As you all know, there are great water power development possibilities on streams within or bordering that state. It is proposed that these streams shall be developed only for use within the state of New York. Governor Pinchot of Pennsylvania has in public announcements shown how narrow this view is and how, if it should prevail, it must curtail natural and economic future developments. The Water Power Act of the state of Wisconsin contains a provision requiring the licensee to agree that energy developed under the license shall not be transmitted out of the state when necessary or proper for use within its state. The legal profession generally doubt the validity of this provision.

"In several states bills were introduced heavily taxing (in some cases on a kilowatt-hour basis) all energy transmitted to sister states. It is quite possible that cases in the future may arise questioning the constitutionality of some of these various statutes or proposed laws, should any of them pass. In that case you in California or in any of the other states represented in this convention will be vitally interested in the outcome of such litigation."

Commercial Committee Meetings

In excellence of papers and interest displayed by section members, the commercial committee meetings were the most noteworthy ever conducted by the association, attendance in many cases exceeding that at some of the national section meetings.

The first meeting of the section Tuesday afternoon, presided over by Don C. Ray, Pacific Gas & Electric Company, was devoted to discussion of the paper on "Possibilities in the Electric Vehicle Field—An Opportunity Overlooked by the Electrical Industry," which was prepared by A. M. Frost and H. E. Sandoval. The paper was delivered at this time to tie in with the electric vehicle parade and the electric vehicle meeting of the San Francisco Electrical Development League. Both the parade and meeting were sponsored by the Electric Transportation Club of San Francisco.

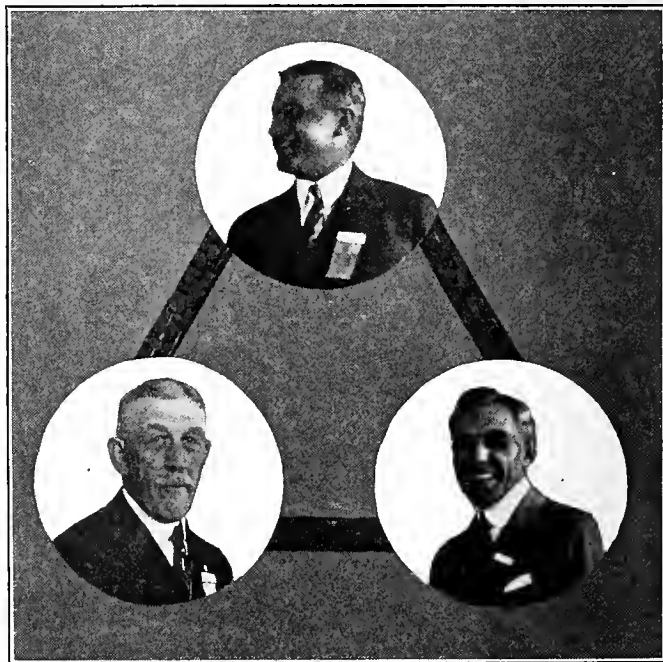
Mr. Frost supplemented his paper with remarks on the operation of five electric trucks in Fresno by the San Joaquin Light & Power Corporation. He pointed out the power cost per mile was 2.75 cents while the cost per ton mile capacity was 2.04 cents as against 6 cents per ton mile for the lighter gasoline operated trucks owned by the company.

H. E. Sandoval described the steps which have been taken in San Francisco and the bay region by the Great Western Power Company and the Pacific Gas & Electric Company in the formation of truck sales bureaus similar to those maintained by some of the larger central stations in New York, Boston, Philadelphia and Chicago. These companies have issued electric truck manuals and have placed special salesmen in the field to cooperate with the vehicle and battery manufacturers. The importance of the opportunity which awaits the central station in the sale of current for battery charging was emphasized by several speakers. It was pointed out that with

the proper sales stimulation this element of public utility service could be brought to a stage where it would form an important factor in the revenue of the central station. There was no doubt in the minds of all present that the electric vehicle offers possibilities for increased central station business on the Pacific Coast.

Merchandising Electric Ranges

The section meeting Wednesday morning was opened with the reading of a paper on "Merchandising Electric Ranges" by A. H. Nicoll, of the Western Electric Company. In the discussion which followed, it was the consensus of opinion that manufacturers, dealers and central stations cannot be ex-



James B. Black, president of the Pacific Coast Electrical Association (top), Samuel H. Taylor, secretary of the Association (lower left), and E. O. Shreve, general convention chairman (lower right), were largely responsible for the success of the Seventh Annual Convention of the organization.

pected to successfully merchandise electric ranges until every member of each department connected with the distribution of this article has an electric range in his home.

R. C. Libbey, of the Simplex Electric Heating Company, pointed out that the de luxe electric homes costing from \$15,000 to \$30,000, which have been displayed in California, convey the wrong impression to the public. He suggested that steps should be taken to show the public that the people in moderate circumstances can own and use appliances.

Don C. Ray, of the Pacific Gas & Electric Company, described the plan for range sales among employees in operation in his company at the present time. A very low first cost is placed on the range and advantageous credit terms well within the means of all employees are offered. A great number of ranges have been sold under these terms. Another point brought out in the discussion was that every new home should be wired for the installation of an electric range, whether the owner intends to install one at the time or not.

Both W. F. Shuhaw, of the Pacific Gas & Electric Company, and Walter Price, of the California Electrical Cooperative Campaign, emphasized this point. Mr. Price pointed out that the rewiring of an old house for range service is often the straw that breaks the camel's back in making a range sale.

R. E. Tompkins, Pacific States Electric Company, brought out the point that cost of operation, slow speed, lack of continuity of service and initial cost have been the four points which have stood in the way of increased range sales in the past. The slow speed of the electric range has been overcome by the manufacturer and continuous electric service on the part of the power companies is assured. The price has come down and the thing to do at the present time, he stated, is to advertise the low rates available to the consumer and the low operating cost of the range.

In the discussion which followed the reading of the paper on domestic and commercial data on cooking, water and air heating, the necessity for adequate wiring for these phases of electric service was again brought out.

In the discussion of the paper on industrial electric heating, F. O. Sievers, of the General Electric Company, suggested that central stations maintain sales engineering organizations to cooperate with the manufacturer in arousing interest in industrial electric heat applications.

Particular interest was displayed in the discussion of the lighting papers Thursday morning. It was pointed out that the percentage of the total cost of a home allotted to fixtures and wiring was too small. The present practice is for the builder to allot from \$60 to \$75 for fixtures and a like amount for wiring of a six-room, \$6,500 home. The practice of a speculative contractor to build to price must be discouraged.

Walter Price, of the California Electrical Cooperative Campaign, suggested that an attempt be made to sell the builder the idea of allotting a certain percentage of the first cost of the home for lighting. In working among builders and architects, he said, he encourages them to allot 3 per cent of the cost for wiring and 3 per cent for fixtures. In the case of \$5,000 homes this would amount to approximately \$300 as against \$150 as has been the case in the past.

E. W. Garcia, Pacific Gas & Electric Company, pointed out that more interest in home lighting can be encouraged by working among the women's clubs in the small communities. It was suggested that the recently organized sections of the Illuminating Engineering Society in San Francisco and Los Angeles act as a clearing house for the illumination problems of the industry, also that the architectural societies open up associate memberships to the electrical industry.

In discussing retail store and window lighting papers, F. N. Smith, of the Cooperative Campaign, told of the results of showing the portable window lighting display in a dozen cities of southern California. Immediately after this exhibition in Los Angeles, he stated, 1,400 additional reflectors were purchased by three large department stores for in-

stallation in their windows. The overcoming of daylight specters in windows was discussed to some extent. It was pointed out that an intensity of 2,000 foot-candles is required to overcome such reflections and that with present rates stores cannot be expected to install the equipment necessary to bring about this intensity.

Clark Baker, of Los Angeles, stated that the future of window lighting is in color lighting and feature effects and described work which has been done recently in the Pacific Northwest along this line.

The paper on Street and Highway Lighting, which has not been published, brought forth considerable discussion. The paper contained a resume of the lighting cost of every city in California and set up standards for the various classes of street and highway lighting.

In discussing whether or not incandescents or arc lights should be installed, L. E. Voyer, of the General Electric Company, pointed out that there are three reasons why arc lights should be installed where a system required 75 or more lamps. He said that arcs are more efficient because they produce better seeing conditions, that they add considerable to the beauty of the street as in the case of Market Street, San Francisco, and that they offer better color contrast between the street illumination and the store window lights.

It was the consensus of opinion that the commercial sessions of the present convention were the most interesting of any which had been fostered by the Pacific Coast Electrical Association.

Technical Committee Meetings.

An innovation in the procedure of the Technical Committee this year was the dispensing with the lengthy discussions on the reports which have been prepared by the various committees during the year for presentation at the meetings and the delivery of special papers on correlated subjects. At the first meeting, Tuesday afternoon, June 19, which was presided over by L. J. Moore of the San Joaquin Light and Power Corporation, three such special papers were read. They were "Induction Regulators vs. Synchronous Condensers," by J. E. Woodbridge, "220-kv. Apparatus," by H. Michener, Southern California Edison Company, and "Kva. Demand Meters," by Otto Knopp, Pacific Gas and Electric Company.

In the discussion which followed these and the regular reports it was brought out that the tendency at the present time is toward the use of automatic equipment wherever such equipment can be installed. Automatic substation equipment was discussed to some length. The question of power factor regulation also called forth considerable discussion. It was the consensus of opinion that rather than further complicate the present industrial rate schedules, the central stations should install corrective equipment at various points on their systems and charge the cost of such equipment to all consumers. It was agreed that the subject is one to which considerable study should be devoted.

Two of the special papers delivered Wednesday dealt with hydraulics. They were "Friction Tests on

Pit No. 1 Penstocks," by R. A. Monroe, Pacific Gas and Electric Company, and "Water Hammers" by R. J. C. Wood, Southern California Edison Company. A special paper on underground construction, by N. B. Hinson of the Southern California Edison Company, and another on the laying of a 35-kv. underground cable in Los Angeles, by O. M. Bolser, brought out the fact that more information on the actual operating temperatures of cables and ducts is needed, together with data on the power losses of such lines.

The feature of the reports and special papers presented before the meetings of the Technical Committee was that of H. A. Barre, executive engineer of the Southern California Edison Company, on "Line Operation at 220,000 Volts." Mr. Barre traced the history of 220,000-volt line operation, pointed out some of the economies and discussed some of the difficulties encountered.

The second general business meeting was held in the Rainbow Lane at the hotel on Friday morning. At this time, President Black called for reports from all of the committees of the Association. Committee chairmen outlined in brief the activities of their respective committees during the past year and made recommendations for carrying on the work under the new administration.

The work of the publicity committee for the past year, which consisted in the creation of a film, "Electricity—the Genii of the West," was reported by Fred Myrtle of the Pacific Gas & Electric Company, chairman of the committee. The film was shown before the delegates and guests Tuesday evening.

The high spots of the New York convention of the National Electric Light Association were covered by M. H. Aylesworth, executive manager of that body, in an address presented at this meeting. The main point put forward by Mr. Aylesworth was that the electrical industry must not only do its work well but that it must tell the public of what it is doing. He said that the industry would suffer from its silence, even if it were doing the task assigned to it,

for the public would feel that unless they were told everything, that actions of improper nature were being countenanced by the industry. It was Mr. Aylesworth's idea that the central station company should not only become more human but should also advertise this fact, and that in addition to rendering service they should talk of the service. He quoted John D. Rockefeller as saying: "The next best thing to doing a job right is telling the people about doing it right."

P. V. Moffatt and F. H. Woodward, representing the southern division and northern division of the Membership Committee, both recommended in their reports that more attention be paid to securing members outside of Class B. They stated that the Association had a definite interest in securing these members not connected with central stations.

The report of the Committee on the President's Report was read by Robert Sibley. In this commendation for the activities of the past year was made. The report, along with the President's report, will be printed and distributed to the members of the Association.

E. B. Criddle reported for the Resolutions Committee. In this appreciation was expressed to all of the men and organizations aiding in making the Convention a success.

New Officers.

A unanimous ballot was cast for officers and members of the executive committee as named by the Nominating Committee. A. B. West, chairman of the Nominating Committee, read the report of the body.

The newly elected officers are as follows:

L. M. Klauber, San Diego Consolidated Gas & Electric Company, San Diego, president;

William Baurhyte, Los Angeles Gas & Electric Company, Los Angeles, first vice-president;

Frank A. Leach, Jr., Pacific Gas & Electric Company, San Francisco, second vice-president.

S. B. Anderson, Pacific States Electric Company, San Francisco, treasurer.

Newly elected directors are: H. H. Walker, H. H. Walker Company, Los Angeles; R. A. Balzari, Westinghouse Electric and Manufacturing Company, San Francisco; J. F. Poll-



Members and visitors in attendance at the Seventh Annual Convention of

ard, Coast Valleys Gas & Electric Company, Salinas; E. B. Criddle, Southern Sierras Power Company, Riverside; C. C. Hillis, Electric Appliance Company, San Francisco; S. J. Lisberger, Pacific Gas & Electric Company, San Francisco; C. T. Hutchinson, McGraw-Hill Company of Calif., San Francisco; F. J. Airey, Pacific States Electric Company, Los Angeles; A. M. Frost, San Joaquin Light & Power Corporation, Fresno; S. M. Kennedy, Southern California Edison Company, Los Angeles; Robert Sibley, California Alumni Association, Berkeley, and J. B. Black, Great Western Power Company, San Francisco.

Following the business meeting in the morning, convention delegates were guests at the California Forward luncheon of the California Development Association.

Western Development Conference.

The Western Development Conference which has come to take such an important place in the conventions of the association was held Friday afternoon. Devoted as it is to the discussion of problems common to the interests of all industries by readers in activities other than the electrical industry, the conference this year was one of the most successful ever held under the auspices of the organization. A. Emory Wishon, general manager of the San Joaquin Light & Power Corporation, presided over the gathering. In his opening remarks he emphasized the importance of the conference, pointing out that what affects the social and economic structure of the West as a whole, will, in turn, affect the electrical industry.

Harvey M. Toy, chairman of the California State Highway Commission, appeared in place of Governor Richardson, who was detained at the State Capitol. Mr. Toy expressed the greetings of the governor and spoke briefly on the highway development in California, Nevada and Utah.

James G. Scrugham, governor of Nevada, was the next speaker. His remarks were most pertinent at this time, for he discussed the development of the Colorado River and brought forward a new proposition for the culmination of the project. He said, in part:

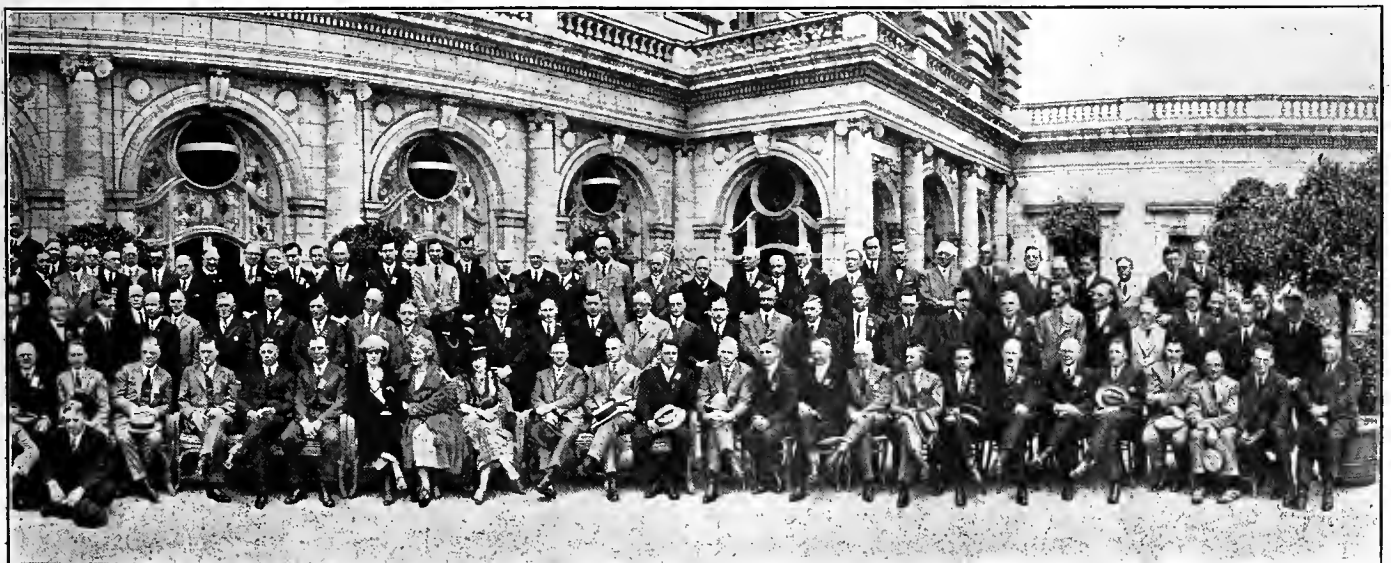
"Why is it that the West has failed to take advantage of the vast resources of the Colorado River? It is because there has been a lack of cooperation among the several

states, and the lack of a common agency for a definite understanding. Instead of a servant the river is now the master. It is a menace to the very life of the Southwest. High cost and jealousies stand in the way of bringing about flood control which will eliminate the dangers of inundation."

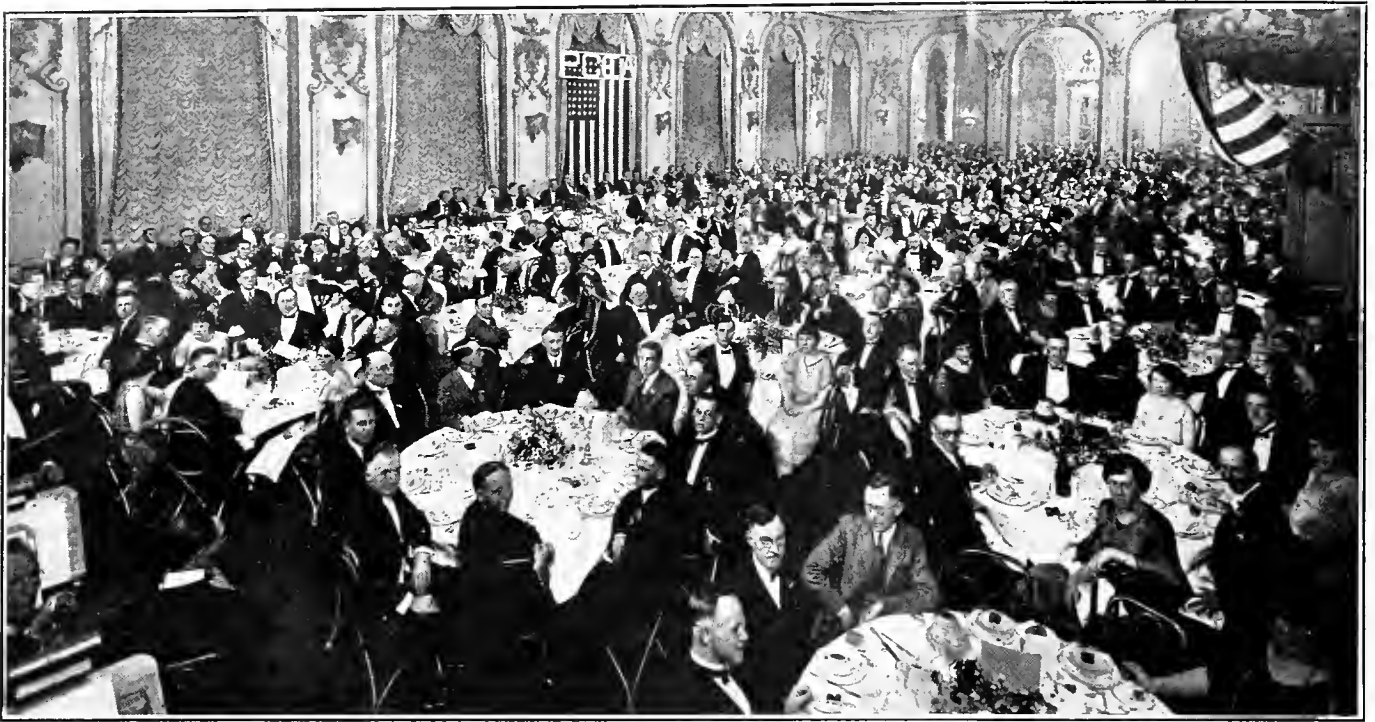
He outlined the objections of Arizona as given to him by one high in the government of that state. His suggested solution for the present deadlock between the states of the Lower Basin called for the formation of a body similar to the Port of New York Authority which was organized by New York and New Jersey for the development of New York harbor. California, Arizona and Nevada would comprise the organization. Such a body might, he declared, petition Congress for adequate flood control appropriations, issue tax-free bonds and administer the funds raised. It should not engage in the retail generation or distribution of power but should leave this function to private interests. It should be run for the primary benefit of the public, acting as a private agency formed to carry out the plans of the three states concerned. He pointed out that the Sanitary District of Chicago is another such body which is functioning very successfully.

Willis Booth, president of the International Chamber of Commerce and vice-president of the Guaranty Trust Company of New York, delivered the principal address of the conference. He spoke on "The Importance of the Pacific Coast in World Affairs," concerning his remarks with the vision and responsibilities of the West as seen by the East. He pointed out that in California population precedes industry, that over production was a problem and that the distribution of the surplus products of the state was the keynote of the future development. He urged that the people of the state concern themselves with four vital problems, the development of the Colorado River, giving Arizona an outlet to the sea; the annexation of Lower California as a part of the United States; the agricultural development of the Philippines and the development of East Indian market with Manila as the center of trade.

A. C. Hardison, president of the California Farm Bureau Federation, presented the viewpoint of the



the Pacific Coast Electrical Association, San Francisco, June 19-22, 1923.



Approximately five hundred men and women attended the banquet held at the Fairmont Hotel, June 22.

24,000 farmers on "The Agricultural Phase of Western Development." He explained that what California needs at the present time is not more farmers upon her lands but markets for the present products. He stated that cooperative marketing is the solution for the problem of the distribution of the farmers' products. Paul Shoup, vice-president of the Southern Pacific Company, spoke on "The Effect of Government in Business on the Progress of the Country." He pointed out that the government was not organized for business and called attention to the losses which have been incurred whenever the government has attempted to enter business. He pointed to the hydroelectric industry of California as an example of the progress which can be made by individual enterprise and initiative under government regulation. The West, he declared, needs individual enterprise for its future development.

The conference drew a large attendance and in interest displayed, was the most noteworthy ever undertaken by the Association.

The finale to the convention came in the form of the annual banquet. Approximately 500 men and women attended one of the most successful banquets ever held by the Association.

Wigginton E. Creed acted as toastmaster in the absence of John A. Britton, and introduced Ralph P. Merritt, managing director of the Sun-Maid Raisin Growers, who spoke on "Agriculture and Power in State Development."

Immediately following the banquet, a special entertainment was provided for the delegates by the Entertainment Committee. This committee developed a pageant dealing with the progress of California from the time of the aborigines. The pageant was made up of seven phases, each destined to show a particular period in the development of the state.

The cast for the production was secured from members of the Pacific Service Employees Association of the Pacific Gas & Electric Company.

Entertainment Features

The entertainment features were many and varied. The golf tournament, ably conducted by W. B. Sawyer of the United States Steel Products Company, brought out a record number of entries. The Byllesby trophy was won by H. J. Billica of the Western Electric Company. E. R. Northmore, Los Angeles Gas & Electric Company, was second in the Class A tournament, while the Class B tournament was won by T. J. Bennett, Rex Electrical Contracting Company, with H. R. Noack, Pacific States Electric Company, and N. S. Gallison, Journal of Electricity, tied for second. The tennis tournament was won by R. A. Munroe, Pacific Gas & Electric Company, with C. A. Benson runner-up.

The "Kickers'" tournament was won by A. B. Day, Los Angeles Gas & Electric Company. P. R. Ferguson and C. A. Kelley, both of the Southern Sierras Power Company, took second and third places.

Included among the trips available for the guests was one to the factory of the Pelton Water Wheel Company and another to the plant of the Pacific Coast Steel Company.

Arthur E. Rowe of Garnett Young & Company, was in charge of the entertainment for the ladies, which included trips to points of interest about San Francisco. The ladies' putting contest was won by Mrs. H. A. Barre, with Mrs. P. H. Affolter second and Mrs. Allen Jones third.

A post-convention outing trip to Mt. Tamalpais and Muir Woods was enjoyed by a number of convention delegates and guests.

The Illustrated Lecture an Aid to the Public Utility Company

By Lewis A. McArthur

IN the opinion of the Committee on Illustrated Lectures of the Northwest Electric Light & Power Association, moving pictures and lantern slides are exceptionally valuable in educating the public in regards to the activities of public utility companies. In this article prepared by Mr. McArthur for the committee, an explanation is given as to the best methods of conducting such lectures.

THE value of lantern slides and moving pictures as a means of educating the public is almost unlimited. Particularly is this true in smaller communities where the public at large does not have the diversified educational and entertainment facilities that exist in the more populous centers. It has been found from practical experience that in the communities ranging up to 10,000 population a large attendance may be expected at free educational shows put on by public utilities. The desirability of capitalizing on this situation is at once apparent. The problem of reaching the public through the same channels in larger communities is not so simple and will require further study.

Lantern slide and moving picture shows naturally fall into two classes. The lantern slide shows consist of the presentation of slides themselves and an accompanying lecture, and may or may not be followed by a limited amount of moving pictures. In a straight moving picture show it is generally not advisable to attempt to give a lecture but the reels are expected to tell the whole story.

Most of the shows that have been put on in the Pacific Northwest have been of the first type, that is to say, a series of slides has been presented accompanied by a lecture given by some official of the company putting on the show. In most instances the slides and lectures have been followed by a short moving picture, either of an instructive nature or else straight comedy, although the latter arrangement is not recommended. Taking into consideration the mixed types of audiences that must be served, in the Pacific Northwest, it is generally believed that a slide and lecture show is preferable to a moving picture film.

The question of the use of moving picture films without slides and lectures has of course come up many times. The writer feels that up to the present time the general problems in this connection have not been solved. In the first place, a moving picture film that will accurately portray the activities of a company serving a large territory is very expensive. Estimates show that such films cost from \$500 to \$1,500 a reel. Even at that these films would be of a simple nature and the costs mentioned above would include but little for preparation of material in the field, rehearsals, traveling expenses and other outlays which would substantially increase the amounts.

It would take several reels to cover as much ground as could be covered in a series of 75 or 100 slides and a lecture, and in addition the element of elasticity is eliminated, which the writer believes is a serious drawback. A film cannot be changed to fit local conditions except at considerable expense. Then, too, the moving picture houses in the larger

cities are hesitant to take on a show, say, of five or six reels, that is obviously nothing but advertising, so as far as securing exhibitions in regular moving picture houses goes, not much may be expected. It is true that some companies, such as the Portland Railway, Light & Power Company, have produced very interesting films, but it is necessary in the presentation to reduce the advertising element considerably, and the picture has to be staged on the theory that it is of general public interest rather than as an advertising medium of the Portland Railway, Light & Power Company.

As far as the Pacific Northwest is concerned, it is the belief of the Committee on Illustrated Lectures of the Northwest Electric Light and Power Association that the Pacific Power & Light Company of Portland is the pioneer in the field of the extensive use of lantern slides combined with moving pictures for the purpose of interesting the public generally, and customers specifically, in the complex problems confronting public utilities. Owing to the fact that the Pacific company's show has been put on many times with excellent results considerable space will be devoted to describing it in detail.

The first show was put on in The Dalles, Ore., on March 22, 1922, and since that time the show has been more or less continuously before the public. It is true that other companies in the Northwest have made use of films without slides and slides without films, but it is believed that the Pacific company show was the first one to combine the two features.

It was considered at the outset that the show would not be successful unless there was a full house. Arrangements were made with the local theater men to rent a house which would ordinarily have been dark. The show was put on shortly after the monthly bills were sent out and a leaflet was sent out with the bill calling attention to the show. The district manager wrote a personal letter to every company stockholder in the community, of which there were about one hundred. Dodgers were put out on the streets two days before the show, newspaper advertising was used and billboards and win-

*From a report presented by the Committee on Illustrated Lectures to the Sixteenth Annual Convention of the Northwest Electric Light and Power Association at Seattle, Wash., June 28, 1923.

FACTS *about* Pacific Power & Light Company

SERVES over sixty communities in Oregon, Washington and Idaho, including Seaside, Astoria, Vancouver, Hood River, The Dalles, White Salmon, Pendleton, Goldendale, Walla Walla, Dayton, Waitsburg, Pomeroy, Lewiston, Pasco, Kennewick, Prosser, Sunnyside, Grandview, Toppenish, Wapato and Yakima.

Had at November 30, 1922, a total of 51,032 customers, of which 34,476 were electric customers, 9,126 were gas customers and 7,430 were water customers. The total growth of customers has amounted to 46% in the last five years.

The company serves nearly 150,000 people. It has 30,147 residential electric customers connected to its lines.

During the year ending November 30, 1922, the Company generated and bought 88,307,000 kilowatt hours. This is enough electrical energy to furnish service to a 50-watt lamp burning continuously for over 2,000,000 years.

During the year ending November 30, 1922, the Company sent out 243,094,900 cubic feet of gas.

The company has more than 39,110 horse power of installed electric generating capacity. It operates nearly 550 miles of transmission lines and 860 miles of electric distribution lines.

The Pacific Power & Light Company has clean, neat and modern equipment at all the communities it serves. Its property is well designed and maintained at a high state of efficiency. The Pacific Power & Light Company spends every year nearly two-thirds of a million dollars in additions to its property accounts.

A very considerable portion of the Pacific Power & Light Company's securities are owned in the Pacific Northwest. The Company is managed and operated from headquarters in Portland.

During the year ending November 30, 1922, the Pacific Power & Light Company furnished service to a total of 26,793 horsepower in industrial motors and 8,056 horsepower in irrigation motors. The Company furnishes service to more than twenty flouring mills.

The Pacific Power & Light Company has a total of 156 miles of gas mains and 84 miles of water mains and 5.6 miles of electric railways.

The company has hydro electric power plants at Hood River, White Salmon, Tygh Valley, Goldendale, on the south fork of the Walla Walla River near Free-water, Oregon, at Yakima and Naches, Washington.

PACIFIC POWER & LIGHT COMPANY

"Always at Your Service"

A folder, the text of which is reproduced above, is distributed before the lectures presented by the Pacific Power & Light Company. A map of the company's lines appears on the reverse side of the folder.

dow placards were put out, all of them inviting those interested to call at the power company's office and get free tickets for the show. It was deemed advisable to issue tickets to keep the house from being overcrowded. As a result of the publicity given, the house was filled to standing room and the whole show was considered highly successful.

The Pacific Power & Light Company show consists of approximately 75 lantern slides, most of which are taken from photographs, though some are from charts and diagrams. Many of the pictures are hand colored and are very attractive. It takes about fifty minutes to run the slides through the machine and give the talk accompanying the various pictures. The length of time and the exact nature of the slides and talk may be varied with different communities. This elasticity has been found to be a very valuable feature of the lantern slide type of program. Immediately following the slides, the Pacific Power & Light Company presents a moving picture film, generally one of those gotten out by the National Electric Light Association entitled "Back to the Button" or "Yours to Command." Following the reel a prize drawing is conducted and some household appliance is given away to a member of the audience. As a general thing the company gives shows in motion picture houses which are hired for the occasion. Private halls are not generally satisfactory.

The slides from the Pacific company show fall into the following classes: snow capped mountains, glaciers, glacial source of water, stream gaging and rating, diagrams of power plant arrangement, diagrams of water wheel construction, photographs of completed power plants, system map, important company offices and power plants, important industries

served, safety first work, company's securities, electric meter dials, hours of darkness chart, and relations with employees.

Some members of the audience arrive early, probably one-half to three-quarters of an hour ahead of the scheduled show. It has therefore been found necessary to print a small leaflet entitled "Facts About the Pacific Power & Light Company." This is placed in the hands of the audience on their arrival so they will have something to read before the show starts. This presents an excellent opportunity of getting before the spectators some of the basic facts about the company business and a map of the territory served, and in most instances the folder will be carried home for subsequent perusal.

It is extremely important that the small details with reference to the production of the show be properly looked after. It is essential that the show be given on time as it is unfair to an audience of several hundred people to ask it to said around waiting for a dilatory speaker. It is generally found necessary to purchase a slide lantern for the reason that many of the slide machines found in the moving picture houses are in poor repair and are used only to put on advertising slides and program announcements. The local picture house film projector is found to be generally satisfactory but not the slide machine. Particular care should be taken in the method of signaling the machine operator. This is done by use of a dry battery and a small lamp, thus eliminating noise and other diverting action that has a tendency to affect the audience. A slide show generally requires three persons, the speaker, the machine operator, who acts as property man and sees that the house and equipment are properly arranged before the show, and a doorkeeper who can

take care of the admission work and the distribution of the various pieces of advertising literature. The three persons mentioned above are sent out from the Portland office by the Pacific Power & Light Company. Local employees are used as ushers, extra doorkeepers and extra distributors, under the direction of the general doorkeeper. It is surprising how many small details materialize at the last minute that must be properly looked to, and only someone with experience can be depended upon to accomplish the necessary results.

After the company's map is put on, a quick trip is taken over the company properties, including visits to various offices and power plants and other structures that will appeal to the public generally, care being taken all the while not to be too technical. The series of slides showing the industries served is particularly useful as a means of stimulating local interest, for in practically every town there are important local industries that make good pictures. These slides afford an opportunity of calling the audience's attention to the fact that most of these communities would be at a standstill were electric power not available. While the security slides are being shown particular mention is made of the fact that the show is not being put on for the purpose of selling stock, but if there are any members of the audience who are interested in company stock they are requested to speak to the attendant at the door on their way out and they will be furnished with further information. Care must be taken that members of the audience do not get the impression they are being urged to buy something. It is a fact, however, that many shows have resulted in stock sales.

One section of slides shows the audience how to read meters and why bills are higher in the winter than in the summer. The feature of elasticity is without doubt a great asset, as changes in the series may be made from time to time.

Particular emphasis is laid throughout the entire show on the point that the company's properties are clean, neat and up-to-date. This is true in fact, but it is possible in many instances to take photographs that make poor slides. Considerable care and thought should be given to the method of taking the photographs and just what effect they will have on the public. The Pacific company has ample proof that the show has been successful in selling considerable preferred stock. Many prospects have come in after the show whose names have not been in possession of the company before, and a substantial portion of these prospects has been closed. The company has also received a very large amount of favorable newspaper publicity.

An afternoon show is put on for school children, and the arrangement of this show is somewhat different from the evening show. In the first place, it is shorter, for children get restless if they are confined in seats too long. In the second place, the number of slides is materially reduced, and even the near-technical discussion is eliminated. The Pacific Power & Light Company finds it desirable to run more moving pictures and less slides in the afternoon

show, but this does not detract from its value, which lies in the fact that the children go home and advertise the show to their parents and stimulate an interest in the evening presentation. The children are urged to do this in the afternoon show, and there is no question but that good results are obtained.

The writer is strongly of the belief that an excellent opportunity presents itself in the presentation of a slide show before students in state universities and agricultural colleges. Practically none of these students have much knowledge of public policy work, and it should be an easy matter to prevail upon the faculties, particularly in the engineering colleges, to permit shows of this nature to be put on before the students. These shows are also excellently suited for presentation before students in commercial and business administration courses.

Slide shows can also be put on before company employees, featuring securities, safety first work, new methods of construction and other matters of interest. The desirability of each utility owning a good library of lantern slides is becoming manifest. The Pacific company is being frequently called upon to furnish slides for various types of shows and entertainments. One large banking firm operating all over the United States recently sent in a request for twenty slides showing representative power plants and hydroelectric developments, which, of course, the company gladly furnished. Meetings of technical societies are frequently entertained with discussions of a mechanical and electrical nature, and it has been found that interesting shows may be made up from slides out of the library. There are slide exchanges in most large cities that contain a wealth of material. The Portland Railway, Light & Power Company is using slides and moving pictures successfully before community clubs. The Puget Sound Power & Light Company is also working upon a plan of using this type of publicity.

On May 10 the Pacific Power & Light Company dedicated the new Powerdale plant on Hood River before a crowd of approximately 1,000 persons, practically all of whom were customers or stockholders. It was found possible by cooperating with moving picture producers to secure about 300 ft. of film which has been combined in such a way that it makes an attractive addition to any regular moving picture show. This film cost about \$150, and is being used by the company to advantage, not only in consolidation with the slide show, but also in the movie houses in the larger cities served by the company.

The Committee on Illustrated Lectures of the Northwest Electric Light and Power Association is of the belief that the illustrated lecture presents one of the most satisfactory and successful means of putting the problems of public utility operation before the public. Companies that have utilized the lecture plan accompanied by slides and either with or without moving pictures, are universal in their belief that excellent results have been obtained. The cost is certainly not excessive and is decidedly low taking into consideration the number of people that may be reached through this method of public policy work.

Building the Home for Future Comfort

INCREASED consumption of energy and the creation of a future market for appliances is the basic aim of all cooperative campaigns for more adequate wiring, particularly in the home.

The farmer carefully plows and breaks up the soil of his fields so that less resistance is offered the growing seed. Just so the electrical industry through its "convenience outlet" campaign and other cooperative efforts for the education of the public, is preparing the seed bed from which appliance sales will later grow provided the sales resistance has been sufficiently broken down.

The farmer using improved implements such as a sub-soiler or disk plow, ultimately obtains the best results. The electrical industry has been using convenience and comfort as implements to prepare its seed bed until the cutting edge, or the appeal of these time worn tools, is losing its effectiveness.

In an effort to attack the problem from a new angle the Electrical Service League of British Columbia is basing its "convenience outlet" campaign on an appeal to the home builder to look to the future. The "sub-soiler" is the appeal to the canny self interest which will make a home as desirable—and saleable—five years hence as it is today. As a means of furthering this idea the League has prepared a little pamphlet entitled "Looking Ahead" which, with a covering letter, is mailed to every person taking out a building permit.

The pamphlet contains a suggested layout for the wiring in a typical living room, bedroom and kitchen, but the whole argument may be presented in these words—"Looking Ahead"—"Will my home be modern five years hence?"

The covering letter stresses the rapid development of the use of electricity in the home and offers the service of the League office in an advisory capacity:—

Dear Sir:

Do you remember when electric self-starters were first put on automobiles? In a few months all automobiles without electric self-starters were practically out of date. Would you today buy a car without a self-starter? The invention of this starting device revolutionized the manufacture and use of automobiles—the same kind of a revolution is taking place in the use of electricity in the home. In a very short time the home not ADEQUATELY WIRED for portable electric lamps and electrical appliances will be just as out of date as the automobile without a self-starter.

How many times have you seen houses that have grown old before their time—houses out of plumb—boards pulled away from their nailings—floors sagged? These are the almost certain results of poor material and careless building.

The enclosed pamphlet "Looking Ahead" is designed to give the prospective home builder some useful suggestions in planning the electrical installation for his home. Plan carefully that your home may not grow old before its time.

By Rey E. Chatfield

Secretary-Manager, Electrical Service League of British Columbia

BY asking the public, "Will your home be modern five years from now?"—the Electrical Service League of British Columbia is securing new interest among architects and home-builders regarding proper electrical installations in the modern dwelling. Mr. Chatfield describes the campaign which has been undertaken and some of the results achieved.

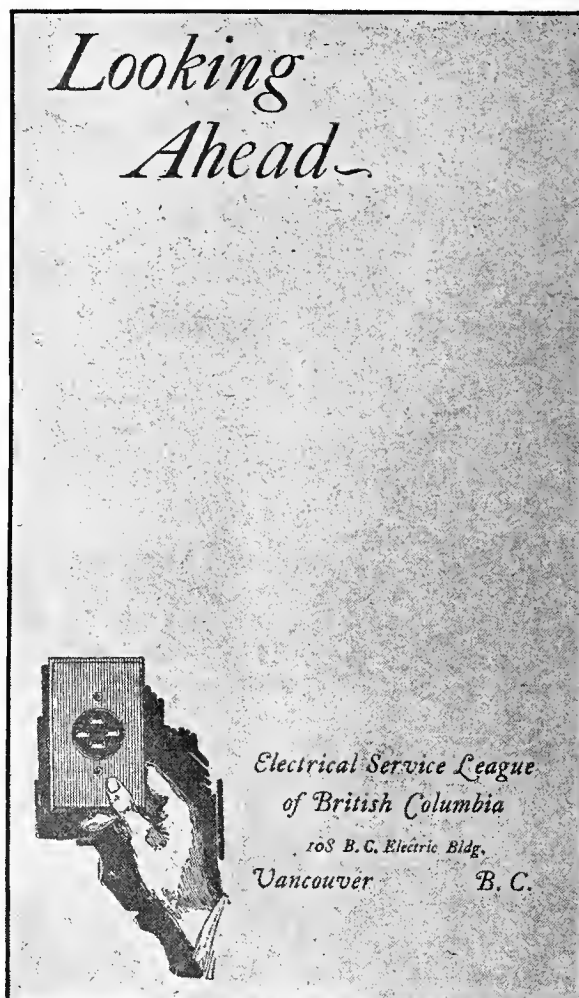
We will be glad to go over your plans with you or your architect to advise the best practice in electrical installations.

For this service, which is free, write, or telephone Sey. 5000 and ask for the Electrical Service League, or consult any of the Electragists named in the pamphlet.

Very truly yours,
Secretary-Manager.

It was found the old argument of comfort and convenience rather than attaining the desired results,

created an antagonism of sales resistance in the minds of both the architect and his client. Every architect believes that in planning a home for his client he is giving a maximum of convenience, comfort and beauty commensurate with the money the client has to spend. On the other hand every home



Pamphlet used in connection with the campaign.

builder, after devoting much thought to the details in planning the little conveniences for his home, believes that the completed plan is what he wants in every respect. To approach the architect or the

home builder when a home is under construction with the suggestion that he provide more adequate wiring or more convenience outlets to increase the comfort and convenience of the home sometimes arouses downright antagonism. This is particularly true if the architect believes implicitly, as often happens, in the perfection of the layout already provided.

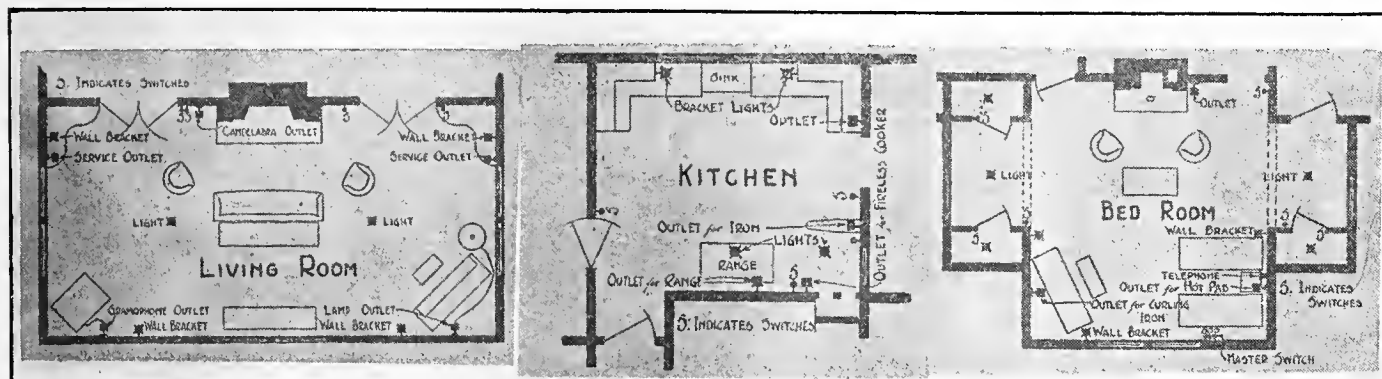
By stressing the wisdom of providing for possible future needs in wiring a home the League has obtained the whole-hearted support of the architect. Recently the local chapter of the Architectural Institute at Vancouver endorsed the whole campaign and agreed to use the free service offered by the League in suggesting through its fieldman, the best practice in planning electrical installations.

In other words, the architect has at his command a consultant who gives good advice on the use

ing letter brings many queries from home builders not employing architects and from general contractors. To requests of this type the first query is "Who is your architect?" This scheme ties in the support of the architect doubly, but does not hinder the League from offering the service to any person applying for advice.

So far no newspaper or other type of publicity has been used in the campaign, but the fact that the Electrical Service League is offering such a service is generally known. Recently a school board having several school buildings to build refused to approve their architect's plans until the electrical and lighting layout had been approved by the Service League.

Work with the architect will probably produce more lasting results, as an architect once sold the idea and value of adequate electrical wiring will make



Suggested wiring plans for three rooms of the home as shown in the pamphlet, "Looking Ahead."

of electricity in the home and who makes no charge for the service rendered. It also adds no little prestige to an architect's office in the eyes of his client if he can say, "When we come to the lighting layout, Mr. —, I will call in my illumination expert for a conference." Once the fieldman is called for such a conference he has an unequalled opportunity to provide adequate wiring for the home under consideration.

The architects in Vancouver are using the service offered by the League because they feel the League is in a measure helping fight their battles.

The following incident is a typical one which illustrates the value of this service to the architects. Recently the owner of a chain of drug stores employed an architect to plan the remodelling of an old building for use as a drug store. He was a firm believer in adequate window lighting so the architect called upon the League for advice as to proper show window lighting. The drug store owner, not entirely satisfied as to the ability of the architect to plan illumination, employed an engineer to check the proposed layout. The engineer checked the plans and reported he could suggest no change in the plans as the specifications were standard for the type of illumination the owner desired. Not only was the drug store owner sold on the ability of his architect but the architect in question believes in the aims of the League in providing more adequate wiring.

The pamphlet "Looking Ahead" with its cover-

provision for sufficient convenience outlets in subsequent plans he draws.

This, coupled with the electric home held last fall in Vancouver and work with the individual home builder, should do much to promote the electrical idea for the industry in Vancouver.

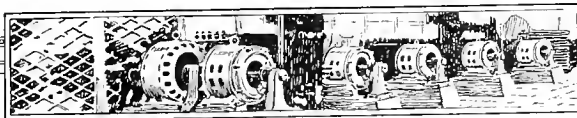
SULPHUR IN WATER CALLS FOR UNIQUE TURBINE DESIGN

The designer of prime movers for hydroelectric plants is required to solve many unusual problems, but it is seldom that so many of these are involved in the building of a small plant as is the case with the equipment for the new municipal power plant at Manizales, Republic of Colombia. This is now being constructed by the Atlantic Department of the Pelton Water Wheel Company of San Francisco.

In the first place, the water supply is so heavily impregnated with sulphur that the Manizales plant may be said to have the unique distinction of using dilute sulphuric acid as a source of power. The ordinary steel construction would, of course, corrode rapidly under such conditions, so it is necessary to use either brass, bronze, or monel metal for all parts that will be exposed to the action of the water.

Furthermore, the turbine, which is a 500 hp. Pelton impulse wheel designed for a head of 250 ft., will have a difficult journey from the shops at Philadelphia, where it is being constructed, to Manizales.

ELECTRICAL CONSTRUCTION



A book of considerable size could be written on apartment buildings because they are the most complicated, in so far as the electrical work is concerned, of all structures designed for the homes of mankind. Before any intelligent layout can be made it is always necessary for the man engaged in installing the wiring to go into the most minute details with the owner regarding what service he intends to furnish in his rental charges to the tenants.

By E. Earl Browne

***BEFORE** an intelligent layout can be made for the electrical installation of an apartment house, it is extremely necessary for the contractor to go into minute details with the owner regarding the service the owner intends to furnish in his rental charges to his tenants. Two typical examples of meter and service boards for apartment houses are discussed in this article.*

Some owners desire to furnish all electric current for air heating, lighting and ranges with domestic hot water from an electrically heated boiler in the basement. With this installation the question of rates from the power company must be considered and the most economical combination worked out. Again, the owner may decide to meter each apartment separately and have the tenants billed direct by the power company. This scheme necessitates a feed from each apartment meter to the panel board in each apartment. Still another scheme is for the owner to install a master meter and pay for all current used for all purposes in the building (See Fig. 1). Under this arrangement, he, in turn, furnishes the meter for each apartment and bills and collects for the current used. In this way he can realize a profit if he so desires by charging the tenant the rate to which he would be entitled under the power company's regular schedule.

Some apartment house owners appreciate the cleanliness of the electric range and its absence of water vapor from cooking to the extent that, since one of the owner's problems is to clean up the apartments when tenants move out (or at least once a year if he is fortunate in having permanent tenants), he realizes that it is to his advantage to encourage the use of electricity. This often results in the owner furnishing and installing a range complete in each apartment and furnishing current free. The tenant in this case has a separate meter for lighting and convenience outlet circuits, which meter may be furnished by the power company or by the owner. (See Fig. 2.)

Fig. 2 shows arrangement where inspection departments require a service switch for all cur-

rent entering the building. Where, as in San Francisco, the lighting and power and heating loads may have separate service switches, switch No. 9 would be installed at service entrance (See Fig. 2) and a feeder would be run from that point to meters Nos. 10 and 11 and panel board No. 12. This would therefore reduce the size of service

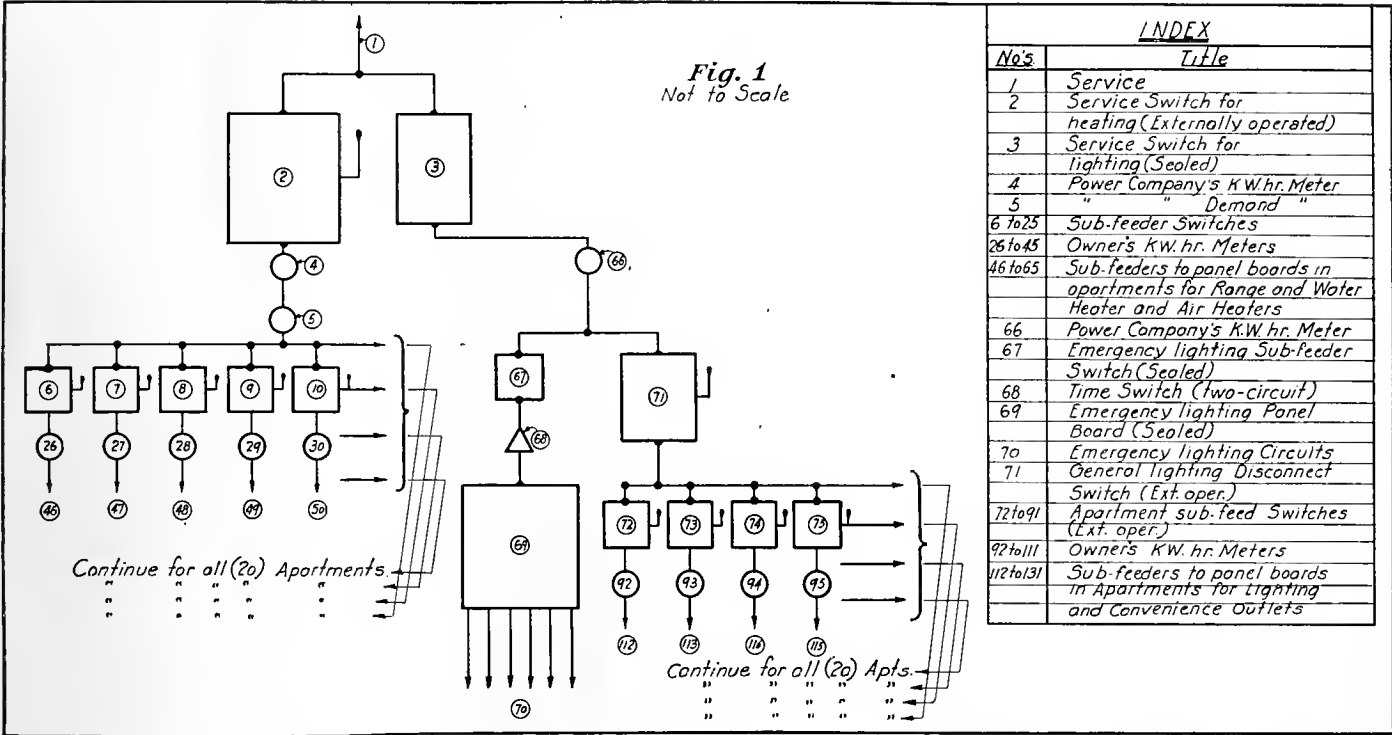
switch No. 2 as well as feeder No. 3.

Demand meter No. 11 is optional with the owner in lieu of minimum charge based on connected load, and is a subject which the contractor should take up with the owner and power company serving the building, as all schedules have certain fixed limitations and one which would give the lowest rate in the case shown, would be entirely too high in the instance of a six-apartment building, due to the guaranteed minimum charge.

As will be noticed from the accompanying diagrams, lights for all the public halls, stairs, fire escapes, and tradesmen's entrances are on a separate system, controlled from an automatic time switch in various combinations to comply with the local ordinances governing such installations.

The signal and communication systems are also subject to much refinement and here again it is important that the owner be consulted in order that the service he desires to furnish be clearly understood. The simplest, and the most used, is one with the vestibule phone and letter boxes outside, with a push button call to each apartment. The phone in the apartments in turn has a push button to operate the electric door opener for main entrance. If a janitor is employed there will be a call button from the vestibule phone to his apartment, as well as a second button on each apartment phone to call him. In an apartment of some size a tradesmen's phone is placed at a convenient point in basement. This phone has a button for each apartment but does not communicate with the vestibule, nor can the apartments ring the trades' phone.

Each apartment main entrance door has a push button to ring a bell or buzzer in the apartment, and if there is a door from the rear or trades' stair to each apartment, this also should have a push button to ring a different toned signal in the apartment.



Wiring diagram of service and meter board where the apartment owner installs a master meter.

All of these should be operated from a bell ringing transformer and thereby save all future upkeep expense for batteries.

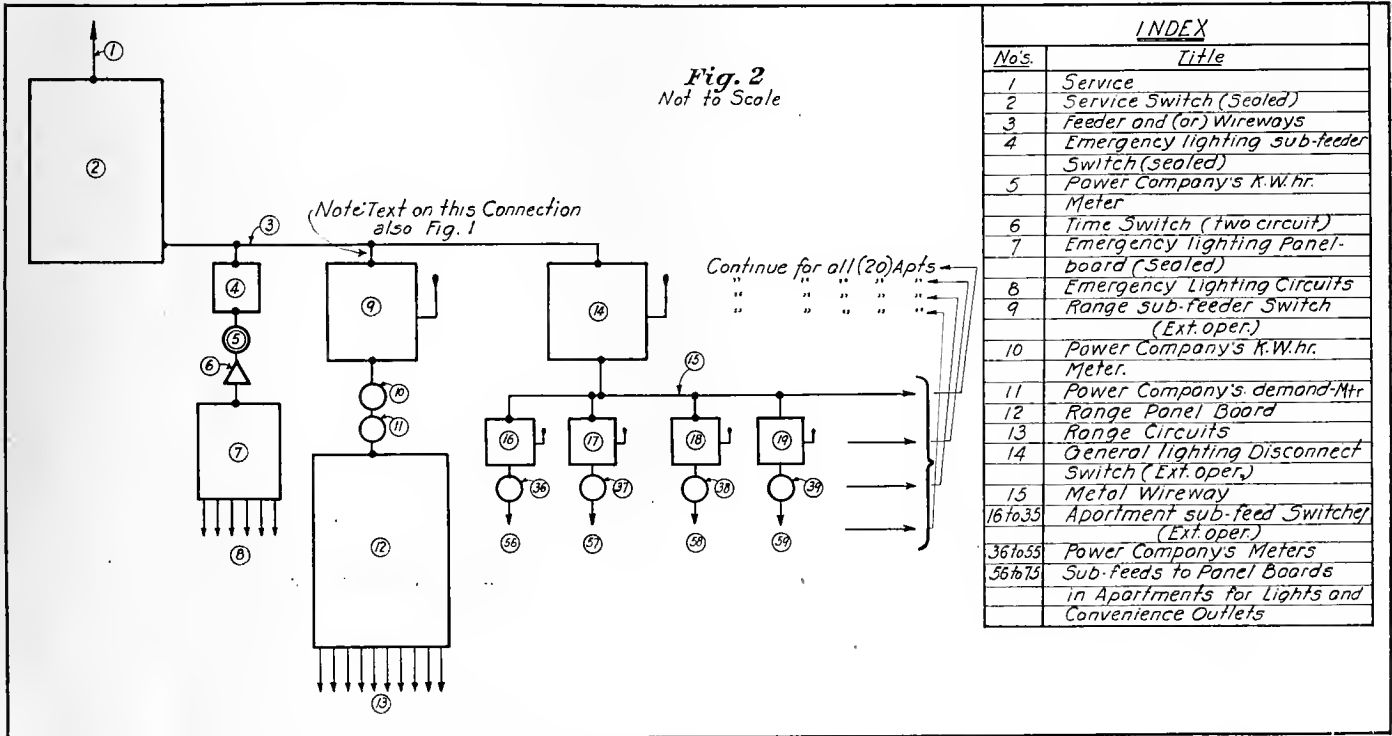
100 Meghom Test, Spec. No. 3420. With reference to moldings and wire troughs, the following schedule should be used:

Usually each apartment is wired for public telephone service to a central location in the basement. There has recently been issued a letter of instruction to contractors regarding telephone installations from the office of the Pacific Telephone & Telegraph Company, which is substantially as follows:

The following type of wire must be used throughout the installation where circuits are concealed and connections are to be made to the Pacific Telephone & Telegraph Company's system; No. 18.

For 3 pair	depth and width	1/2 in.
5 "	" " "	5/8 in.
7 "	" " "	3/4 in.
10 "	" " "	1 in.
20, "	" " "	1 1/2 in.
30 "	" " "	2 in.

Further specifications as outlined by the telephone company for the installation of vestibule sets, size of conduits, etc., will be discussed in the issue of July 15.



Showing the wiring layout where a service switch for all current entering the building is required.

JOBBER, DEALER AND SALES AGENT



The Electrical Industry Tied In with the Circus

Electrical Cooperative League of Denver Secures Publicity and Profits from Arabian Circus that It Sponsored

A new activity, that of staging an Arabian circus, has just been concluded by the Electrical Cooperative League of Denver, Colo. It was originally planned to hold it in conjunction with an outdoors electrical show but owing to bad weather and other exhibitions at which the League will provide feature displays it was thought best to concentrate on the circus, holding two ideas in mind.

The circus marked the first step in the activities of the summer which include active participation in a "Better Homes" show sponsored by one of the Denver newspapers, the Colorado Pageant of Progress at Overland Park, July 2-15.

That the League brought itself into prominence was evidenced by the amount of window and billboard advertising in conjunction with the circus, not to mention the newspaper advertising, radio announcements, parades, and press agent stunts projected.

The circus location was announced by an electric arch carrying over 500

lamps. This was designed and constructed by Clarence Keeler, chairman of the entertainment committee. It was installed at the main entrance on Broadway in full view of all passing street cars and automobiles. Special stringers of lights and pennants were also hung on the midway. The circus idea was introduced by S. W. Bishop, manager of the Electrical Cooperative League of Denver. Other members of the committee responsible for the undertaking were Alex. Hibbard, H. G. Overbeck, N. E. Lawrence and John Hancock, each of whom was charged with the main features in conjunction with the show.

This is the first time that such a novel feature has been attempted by the Denver League. The purpose, according to officials of the organization, was to raise money with which to carry on the work of educating the public to the proper uses of electricity in the home and industrial field.

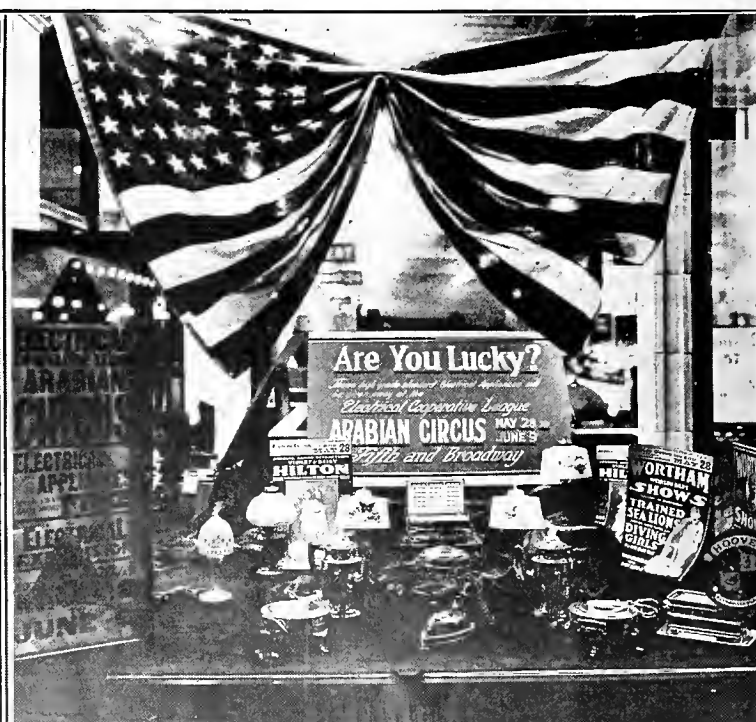
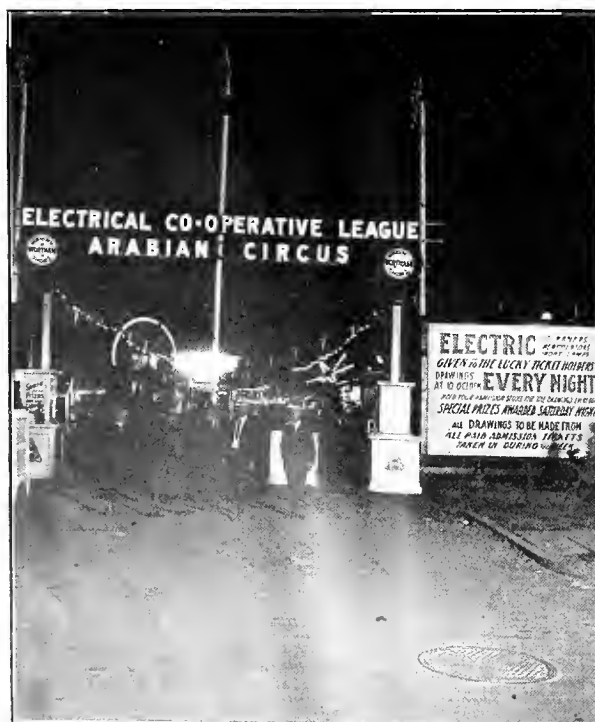
The circus amusements were furnished by the Wortham's World's Best

Shows and were opened to the public under the auspices of the Electrical Cooperative League of Denver.

The awarding of standard electrical appliances as prizes every night during the two-week circus proved a popular drawing card to the amusement fans. The awarding of these prizes took place each night at 10 o'clock and enabled members of the electrical industry to do much toward promoting good-will toward the use of electricity for labor saving purposes.

Approximately 300 in. of newspaper reading matter was obtained to boost the League and its Arabian Circus, in addition to paid display advertising. It is believed by Denver officials that the local League derived more publicity by means of the show than at any time since the exhibition of the first electric home a year ago.

Considering the threatening weather which prevailed to some extent during the two-week circus, May 28 to June 9, satisfactory crowds were attracted by the amusement enterprises. Members of the entertainment committee who had charge of the circus program for the League stated that the organization cleared approximately seven hundred dollars from the circus.

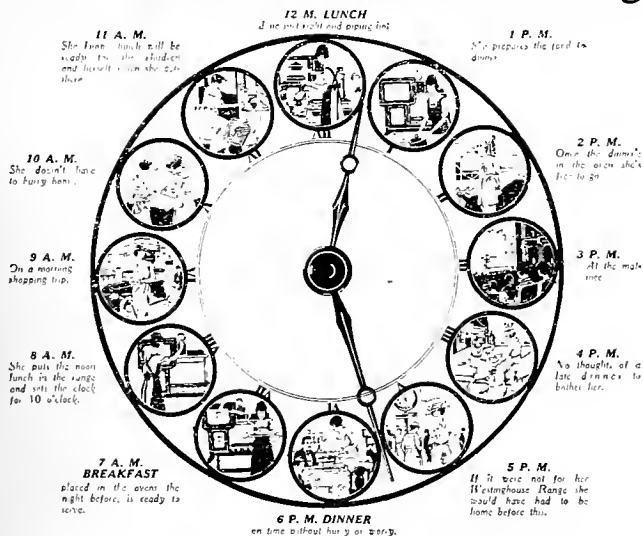


The large electric sign displayed at the entrance to the Arabian Circus attracted the people of Denver to the show arranged for by the Electrical Cooperative League of Denver. The signboards at both sides of the entrance told of the drawings that were held for the appliances that were given away. Display of prizes awarded may be seen in the illustration to the right. The window is the Denver Gas & Electric Light Company's.

Most Attractive Electric Range Offer We've Ever Made

Good Only Until June 15

THE RANGE WITH THE CLOCK



Only
\$15.00 Down

This unusual sale of Westinghouse Automatic Electric Range, offers the following advantages.

1. Range installed complete at reduced price.
2. Lowest down payment we have ever offered—

\$15.00 Only

3. Special easy terms on the balance.
4. Free with each range an aluminum four-piece Cloverleaf cooking set—value \$6.00

Till June 15
Only

ASK
FOR FREE
DEMONSTRATION

Around the Clock in a Home Where There's a Westinghouse Automatic Electric Range
4 men do the work of 10 women. The Westinghouse Automatic Electric Range is solving many of the household problems that have always bothered her. The quietest of rattling pans is no more a worry because the almost human intelligence of the automatic temperature control permits her to take part in and enjoy
a more new and broadening circle of influence, get at the same time gives her a first electric servant
WESTINGHOUSE
AUTOMATIC COOKING

Electric Store
Alder Near Broadway
Portland Railway, Light & Power Co.

The half-page advertisement reproduced above, appeared simultaneously in four Portland newspapers announcing the special offer on electric ranges.

Selling Ranges to Develop an Electric Power Load

Electric Store of Portland Railway, Light & Power Company Uses Special Inducements to Increase Sale of Devices

The electric range load has been found to be one of the most profitable and satisfactory loads that can be put on the lines of the central station and it is for this reason that power companies of the West are desirous to see a larger number of ranges installed. In order to secure this load, power companies have entered the merchandising field and have been making very attractive offers to prospective buyers.

Because the electric range is a comparatively new thing, a considerable amount of sales resistance must be overcome and to do this often necessitates the expenditure of a large sum of money. The central station can afford to do this as the revenue which it secures from the range after it is installed will permit the company to credit some of this revenue to its range sales account. To place the range in the home it is necessary that a careful and complete demonstration of the advantages of the device be given to the woman who is considering making the purchase.

The difficult part of selling the range is to get it in the home for the initial trial. The selling of ranges on the installment plan has been found to be one way to overcome this difficulty, but in most cases the initial down payment has been rather high. The general rule has been that the initial payment amounts to in the neighborhood of 20 per cent of the cost of the range. While this is not exorbitant or unreasonable, it has been rather a hard hurdle over which salesmen have had to get the prospect to cross before becoming the owner of the range.

Experience has shown that an initial payment of less than 15 per cent cannot be offered for a great length of time. Lower down-payments are practical

only in the case of a definite campaign to place the ranges and are then justified by the larger volume of business which ensues. By placing an order for a large number of ranges at one time central stations have been able to secure them at a lower cost and in this way they have been able to reduce the price of the ranges during the sale.

The Portland Railway, Light & Power Company, of Portland, Ore., recently started such a range campaign which ran forty-five days. The drive to place a greater number of ranges in Portland started May 1 and lasted until June 15. During this period the company presented special inducements to customers and reports indicate that the campaign was very successful.

In arousing interest in the electric range which the company decided to feature in the drive, the central station company used an advertising medium which has been proved to be very satisfactory. One month before the announcement of the special reduced rates on ranges, the company, in connection with the range manufacturer, opened a cooking school which lasted ten days. The women of Portland who turned out to visit this school were all considered to be interested in electricity as a cooking agent. It was thus to the advantage of the central station company to secure the names and addresses of these women who were interested.

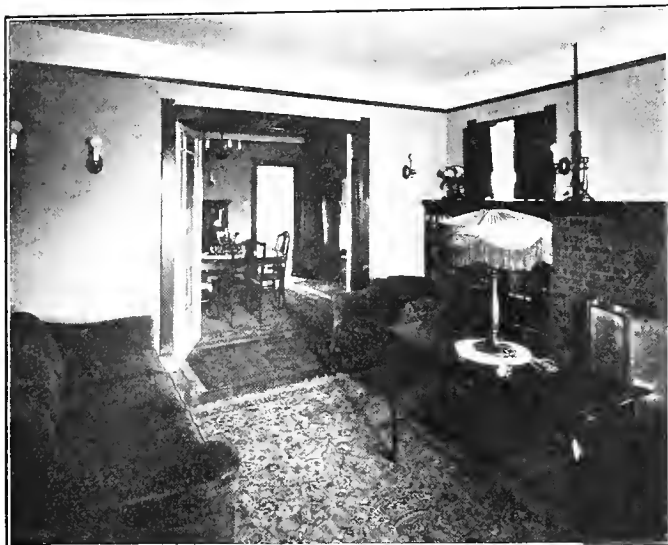
To do this, the company, which is represented in the merchandising field by the Electric Store of the Portland Railway, Light & Power Company, presented each visitor at the school with a small cook book in which she could make notations as to recipes, etc. The names and addresses were secured by a young lady who sat at the entrance to the lecture hall and gave out the

cook books. As the book was presented to the visitor, the young lady asked the name and address, stating that she wished to write it in the book that it might be returned to the owner in case she lost it. In this way the addresses of range prospects were secured, for the young lady wrote these down on separate cards which were filed.

In following-up these prospects, the Electric Store used five salesmen and a supervisor. These men were given the names of the visitors at the cooking school and used them as a preferred list of prospects. Direct-by-mail advertising was also used to canvass these women.

One of the principal factors used in putting over the campaign, was the newspaper advertising employed by the company. Throughout the time that the drive was in progress, large display advertisements were run in all of the four papers in Portland. The same advertisements were run on an average paper on the same day and the same amount of space was used in each case. The advertising campaign opened about two days before the offer that was made became effective. The announcement was made in a one-half page display advertisement, this piece of copy being run four times on alternate days. After this smaller space was used, the advertisements were run on an average of four times a week. The copy for the campaign was all prepared in the advertising department of the central station company.

The Electric Store featured the 319-B Westinghouse automatic electric range and offered to install this range for the retail list price. As a further inducement, the store announced that the initial payment that would be accepted was \$15 and monthly payments were set at \$10. No interest was charged on the deferred payments. An aluminum four piece clover-leaf cooking set was also given to the women who purchased ranges during the 45-day period.



The living room and dining room, showing method of lighting employed.

The kitchen of the Laramie home showing electric range and dishwasher.

The First Electric Home Is Displayed in Wyoming

Contractor-Dealer at Laramie Exhibits Own House to 300 Visitors in Three Days at Cost of \$50

To a contractor is due the credit of building the first electric home in Wyoming for exhibition purposes. Adding to the glory is the fact that he displayed his own new home and the only attendants or guides outside of himself were his wife and daughter.

F. A. Fellows, a contractor-dealer of Laramie, Wyo., was the first disciple of the model electric home movement to spread the gospel in his state. Results have been secured already, for, according to Mr. Fellows, he has wired two homes since the exhibition in which the lighting and adequacy of convenience outlets was developed according to the standards established in his own home. Plans for other house-builders are being prepared also, it is said, to include improved wiring layouts.

Although Mr. Fellows believes in economy as represented by the fact that all bracket lights had self contained switches, he also believes in the saving of steps as three-way switches were installed in every place where they might later prove of convenience. The living room was lighted entirely by brackets and the dining room with ceiling and bracket lights. Ceiling and bracket lights were also installed in the bedrooms and kitchen.

An automatic electric range and electrically heated ironing machine were the heaviest power devices installed and these were chosen by Mrs. Fellows, along with the washing machine, dish washer, and vacuum cleaner. Other appliances displayed were a toaster, waffle iron, percolator, samovar, beater and mixer, fan, curling iron, hair dryer, heating pad, vibrator, portable heater, and sewing machine.

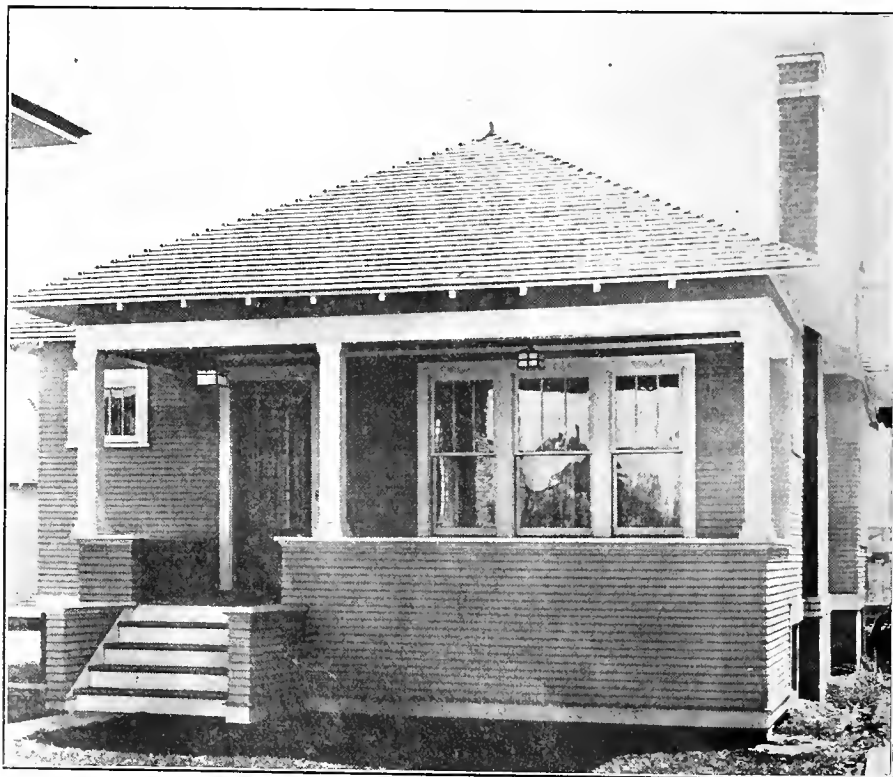
One of the features of the exhibition was the demonstration of the part convenience outlets play in the modern home. A number of portable lamps were used by the Fellows' and the appliances displayed were actually "hooked-up." The house, a six-room bungalow, contains 24 convenience outlets, all of the flush pin protected type, and many of them are duplex.

The total cost of the exhibition proper did not exceed \$50, according to Mr. Fellows, and this included some advertising. The central station at Laramie contributed the current for the first month. Two prominent Denver jobbers, the Mountain Electric Company and the Western Electric Company, provided some of the appliances displayed. The Denver Electrical Cooperative League provided such information and advice as to the wiring and exhibition as it could.

Although the home was only open to the public for three days, over 300 people visited it during that time.

The Cutler-Hammer Manufacturing Company of Milwaukee, Wis., has been developing a new type of automatic starting panel for use with synchronous motors and has recently announced that the line is ready for distribution. By the use of the controller a synchronous motor can be accomplished by merely using a push button. With this type of controller the starting of the motor can be made full-automatic in pumping installations where levels of liquids or pressure of gases can be used to actuate switches. The controller is also adaptable to remote control.

Schweitzer & Conrad, Inc., Chicago, Ill., have recently published Bulletin No. 223 which deals with indoor bus supports. The bulletin describes and lists latest practice in this line of development.



Six-room bungalow built and displayed by F. A. Fellows, contractor-dealer of Laramie, Wyo. This is the first electric home exhibited in that state.

New Home for Electric Shop of Idaho Power Co.

Correct Illumination Is Featured in Completely Modern Store Recently Opened to Public of Boise, Idaho

A new retail store, that is an excellent example of the type of establishment operated by western power companies, has recently been opened by the Electric Shop of the Idaho Power Company at Boise, Idaho. Boise is the capital of Idaho and is also the headquarters for the Idaho Power Company.

The new location of the Electric Shop is in the center of the shopping district of Boise, and before the central station company secured a lease on the store, it was occupied by a drug store. Considerable remodeling was necessary before the location could be used as an electrical store and the company spent a large sum of money in making the show room an attractive one.

In preparing the store for the use of the Electric Shop it was necessary to completely rewire it. This was done in order to give a sufficient number of convenience and lighting outlets to permit salesmen to demonstrate appliances on the floor and to provide for correct illumination.

One of the principal features of the new store is the way in which it is lighted. In the show room itself, there are twenty-three bowl-type fixtures attached directly to the ceiling. A cream-colored ceiling and alabaster festoons serve to deflect and diffuse the light to all parts of the sales floor. In addition to this overhead lighting, there are about twenty wall fixtures of the bracket type.

Considerable thought was put to making the layout for the store. The result, as the accompanying illustration shows, was to use both sides of the rear of the store for counter and desk space. Salesmen have their desks in the space behind the counters and are thus separated from the rest of the sales floor. A desk for the convenience of customers is placed in the center of the store at the rear. Ranges and heavy appliances are backed up to the wall on one side

of the room while small appliances are displayed in a glass show case in the center of the floor. Plugs, fuses and other miscellaneous devices are kept in a small case near the door.

"THERE ARE NO ALPS"

By JOE OSIER

"There are no Alps," snapped Napoleon as he adjusted his epaulets, tightened his belt three or four notches and came up with a swanky salute.

Then he marched his army over them as if they were not there—and—

The above prompts me to suggest that—

That is the spirit which creates reputations which time cannot efface—bank balances which attain commanding proportions and—

Bales of boodle which make the owner round shouldered from toting.

This proposition of making a rep and a roll is, to my way of thinking, as easy as shooting fish with stumping powder. There is nothing to it—

Except work, the efficient use of brains and the application of horse sense because—

Quoting Napoleon, who hit a thousand and led the leaguers in all departments of the game, including retreating—

"There are no Alps."

And, so I report, with a happy snackle, that any man, engaged in the electrical industry, can surmount that precipitous cliff which appears in his path—providing—

He refuses to admit defeat—providing he shows discouragement the gate and providing he marches breast-forward—

Toward his own individual Alps, climbing upward and upward, until he gains the dizzy heights and—

Lies panting on the pinnacle.

And, while typing these lines, I do not mean to insinuate that men of any trade or profession should—

Lay aside the pink sheet and embrace the five-foot shelf—because—

My mind runs along with the mind of the man who released that smart crack about—

All work and no play makes Jack a dumb-bell.

Every Jack must have play but the hours between 8 a.m. and 6 p.m. should not be utilized for that purpose and—

I say this in spite of the fact that I know it is a delightful experience to putter around in green pastures or—

Lie on silver strands listening to the lispings wavelets, but—

The tale told by bulging billows will not buy beefsteak for either owner or employee and—

In this day of excessive overhead and keen competition—the job is the thing unless—

It has been figured down to the gnat's knuckle.

In case of the latter, it were better to place the "back at such and such a time" on the door and—

Go communing until men of the trade determine to be in business for something—

Besides keeping an organization intact.

"Talk is cheap," I'll admit, still—

Seeing that I have scaled an entire range of Alps while picking out this preachment, I feel that I am entitled to talk until I reach the bottom of this blurb and—

Really convince the Men of the Trade that "wolfing"—ofttimes referred to as—

Grumbling and growling—

Is the chief amusement of fine fozzles and futile failures.

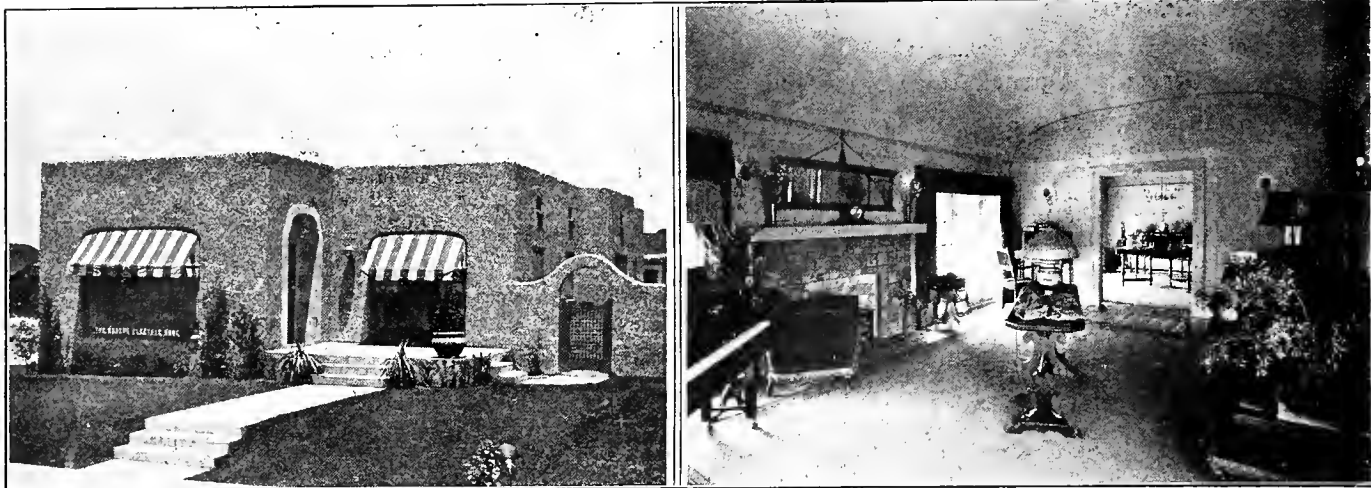
The big men in the game—the boys who count their kale with a comptometer and squawk "Home, Jamus"—

Merely step on their privately owned and operated escalators and flip over the Alps and—that is all there is to it—and so,

I'll slip out while the exits are clear.



The largest electric sign in Boise advertises the location of the Idaho Power Company's Electric Shop. The interior of the store is well arranged and excellent light is furnished for salesmen to demonstrate electric appliances. The company believes in electrifying its home.



The exterior of the modified Spanish home displayed in San Diego as "The Modern Electric Home" is shown to the left. The view to the right was taken from the front entrance and shows the living room of the house with the dining room in the background.

San Diego Presents Message to Thirty Thousand

Excellent Results Obtained from Display Sponsored by State and Local Electrical Cooperative Organizations

By WILLIAM A. CYR

It is in actual, visible results that the success of a venture may be measured and an electric home is no exception to this extremely practical rule. All the ravings of press and public over the beauties and conveniences of such an institution would be of little use if someone had not been impressed enough by it all to order additional convenience outlets and an electric range for his new house.

Measured by this rigorous standard, the Modern Electric Home, which recently closed an eighteen-day display in San Diego, Calif., has already proved its mettle. The doors had not closed on the last of its 28,130 visitors without having left results evident everywhere.

The man who, having seen the home himself while on a visit to San Diego from Imperial Valley, went back to bring with him a delegation from the Valley to see its conveniences, was only one of these "results." Whether or not he was responsible for the coming of a Mr. Jenkins, of El Centro, does not really matter. What matters is that

Mr. Jenkins, who was building an apartment house in Imperial Valley, intended to install oil burning stoves in all apartments. He and Mrs. Jenkins saw the electric home in San Diego and went home to order electric ranges throughout and an ample supply of con-

Nearer home, in La Jolla, a suburb of San Diego becoming famous as the center of millionaire homes, many already electrified in many respects, there was also a noted "result." A contractor in La Jolla, building a home calling for 22 convenience outlets, having seen the electric home, went directly to the electric wiring contractor and ordered 38 outlets instead of the specified 22.

These were but a few of the immediate, tangible reactions from the exceedingly successful electric home display in San Diego, between May 17 and June 2. The hostess, Mrs. Helen Grahame, singled these from the many she noted. Her assistants, Mrs. Cora Hogaboom, Miss Jean Chatten, and Miss Louise Berger, tell of many more.

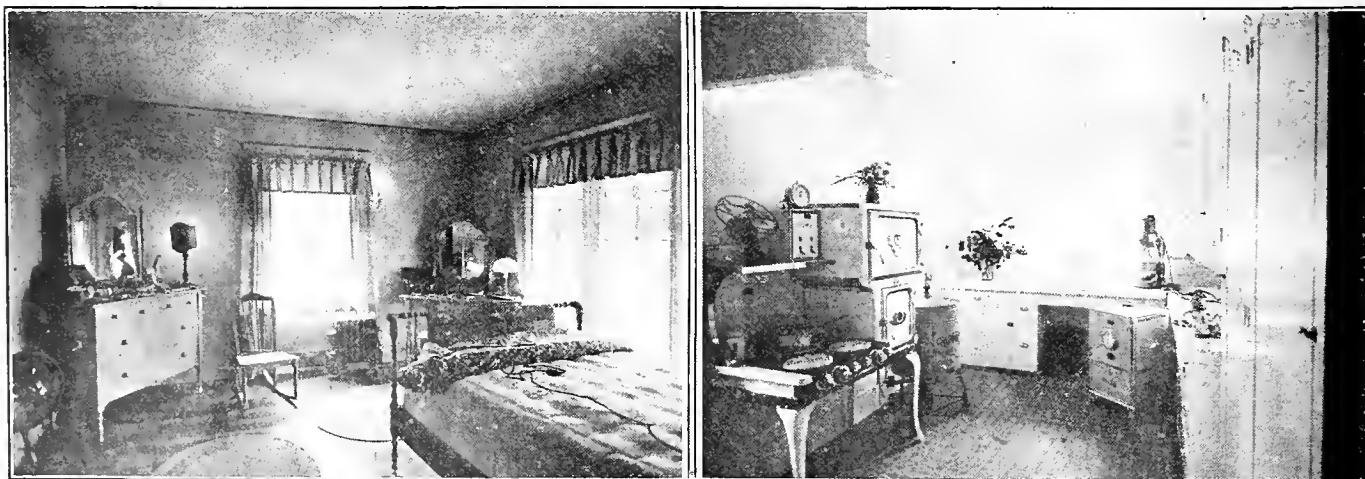
The reason for this increase in demand for electric ranges, convenience

outlets and appliances is the electric home itself, its construction, arrangement and furnishing. A. Schreiber, a progressive young builder, with a true idea of the electric home idea directing him, built well. From the lawn and shrubbery enhancing the pebbled stucco exterior of the home, to the last detail of dining room, bedroom or kitchen, the home spoke of craftsmanlike feeling. The electrical dealers and the central station in San Diego, composing the membership of the Electric Club, with the cooperation of a music company, two furniture dealers, and an automobile dealer, completed the picture.

The home was a comfortable dwelling, built in modified Spanish style, of six rooms and bath. A capacious living room opened from a small porch. Its

From the opening the house was crowded every day during the exhibition hours from 2 to 5:30 and 7 to 10 p.m. A total of 28,130 people were counted entering, and as many as a thousand were estimated to have been overlooked in the crowds that poured through the doors. The last day, Sunday, June 3, 4,000 people visited the home, the largest number to visit it on any one day.

Advertising the home was supervised by Frank Smith, field representative of the California Electrical Cooperative Campaign. During the time that the



(Left) One of the three well appointed bedrooms of the San Diego Electric Home. (Right) The modern kitchen of the home that presented the idea of electrifying to nearly thirty thousand people who visited it.

Free Repair Week Gives Dealers New List of Prospects

As a means of stimulating business the central station and electrical contractor-dealers of the lower mainland of British Columbia recently carried out, under the auspices of the Electrical Service League of British Columbia, a very successful Free Repair Week. In planning the details of the campaign it was necessary that all cooperating firms observe the same policy, offer the same service and repair only the named appliances. To accomplish this the following agreement was signed by the cooperating firms:

It is proposed that the contractor-dealers co-operating with the power company, hold a Free Repair Week from April 2 to 7.

During this time repairs to the following appliances will be made on a basis of free labor. Replacements, parts, etc., in value exceeding 25 cents will be charged for at retail prices.

The appliances to be repaired free are: grills, toasters, toaster-stoves, chafing dishes, hot plates, disk stoves, irons, percolators, waffle irons, heaters, immersion heaters, curling irons, shaving mugs, and milk warmers.

Newspaper advertising for this Free Repair Week will be paid for by the power company. Such advertising will contain not only the propaganda for Free Repair Week, the articles to be repaired, but also the names of the cooperating firms. Suitable window cards will be furnished by the central station to cooperating firms, announcing that free repairs may be had at these establishments.

We the undersigned agree to cooperate with the central station in the Free Repair Week outlined above and agree to furnish free labor, but to charge retail price for replaced parts in value exceeding 25 cents.

The central station advertised the Free Repair Week adequately through the medium of newspapers and display cards—each newspaper carrying not only the announcement of the Free Repair Week but also the names and addresses of the cooperating firms.

Twenty contractor-dealers from New Westminster, Point Grey, West Vancouver, North Vancouver and Vancouver cooperated with the central station in this campaign and repaired on an average fifty appliances each during the campaign.

From a central station, as well as from a contractor-dealer point of view, the campaign was very successful as the central station through the campaign put nearly one thousand appliances, using energy to generate heat, into operation on their lines, while the contractor-dealers reported in every case sufficient increase in sales to carry the cost of the labor and parts furnished free. In addition to the increase in sales the campaign enabled contractor-dealers to obtain a live prospect list for appliances, each contractor-dealer being instructed to question the people bringing in appliances for repair as to the other appliances they used.

Subsequent follow-up by the dealer has resulted in appliance sales. The "Free Repair" gave the dealer an opportunity to demonstrate appliances in homes where his outside salesman had heretofore been unable to get a hearing.

Such a campaign, properly organized and properly followed up benefits all branches of the industry. In preparing such a campaign, all that is necessary is to get the power company and contractor-dealers in the territory to agree upon the appliances that are to be repaired free.



FREE REPAIR WEEK

April 2 to 7

Don't let your electrical appliances lie on the shelves simply for want of some trifling repair.

Bring them to any of the electrical dealers named below during Free Repair Week and have them fixed.

NO LABOR CHARGE

NO CONDITIONS

Materials or parts costing 25 cents or less, used in making repairs, will be free

The following appliances are included in this offer:

Chafing Dishes
Curling Irons
Milk Warmers
Shaving Mugs
Waffle Irons

Disk Stoves
Grills
Heaters
Percolators

Hot Plates
Immersion Heaters
Irons
Toasters
Teaster Stoves

Offer good only during Free Repair Week, April 2-7

Electric Supply & Contracting Co., 781 Granville St.
Jarvis Electric Co. Limited, 570 Richards St.
W. A. Kruse & Co., 412 Abbott St.
Main Electric, 247 Hastings St. E.
Perry Electric, 985 Robson St.
Rankin & Cherrill, 55 Hastings St. W.
The Electric Shop, 32 Hastings St. E.

Wallace Electric Co., 913 Granville St.
The Electric Shop, Ambleside Wharf, West Vancouver.
C. Moulton, 704 Columbia St. N.W.
Graham Electric Co., 929 Pender St. W.
Jenkins Electrical Co. Limited, 546 Main St.

P. F. Letts, 3044 Granville St.
Muir Electric Co., 414 Hastings St. W.
P. G. Electric, 2181 West Forty-first Ave., Kerrisdale.
J. C. Reston, 411 Howe St.
Universal Electric Co., 1517 Broadway W.
North Shore Electric, 123 Lonsdale Avenue, North Vancouver.
Hume & Rumble, 647 Columbia St., N.W.

And any B.C. Electric showroom in Vancouver, North Vancouver and New Westminster

This space donated to Free Repair Week by the British Columbia Electric Railway Company

INDUSTRIAL NEWS



Preliminary Permit for Project on Green River Granted

Permit has been granted by the Federal Power Commission to the Utah Power & Light Company to proceed with the preliminary engineering work in connection with the development of the Flaming Gorge power site on the Green River in Utah. This removes the last obstacle delaying the beginning of the preliminary work which has been planned for some time by the Utah Power & Light Company. This work will start at once.

The preliminary work to be done includes the making of detailed hydrographic investigation, topographical surveys, drilling to obtain data that will determine the features of design and construction of the immense dam, and an investigation as to the best methods of transporting materials to the site.

When the preliminary permit is superseded by a license, the Utah Power & Light Company will spend considerably in excess of \$10,000,000 on the project. A concrete dam, which will be 215 ft. high and approximately 600 ft. long at the crest, will be built across the Green River. From this dam, at a point near the top, the company proposes to build a tunnel 25 ft. in diameter and $3\frac{1}{2}$ miles long. It is proposed to obtain a working head of 415 ft.

The site of the proposed dam is 5 miles south of the Wyoming line, in the northeastern corner of Utah, about 125 miles east of Salt Lake City.

The company's present plans involve the construction of a hydroelectric plant to develop approximately 60,000 hp. About one thousand men will be employed for a period of about three years.

The granting of the permit was held up at first by the creation of the Colorado River Commission, and later by the strenuous objection of the State of Colorado, which opposed the granting of the permit until Arizona had ratified the pact. Colorado has recently withdrawn its objections, and opposition from the Colorado River Commission was withdrawn when a condition was written into the permit making the power rights at Flaming Gorge subordinate to irrigation at all times.

Instead of the Flaming Gorge power development interfering with irrigation, the Federal Power Commission holds it will actually be beneficial through the storage of water.

California Oregon Power Co. to Purchase Small Utility

After an exhaustive investigation, The California Oregon Power Company has decided to acquire and thereafter

operate the Douglas County Light & Water Company properties located at and around Roseburg, Ore., and has made application to the Railroad Commission of California for permission to do so.

The electric system of the Douglas company will be connected at Dixonville, six miles east of Roseburg, with the high voltage transmission line constructed last year from Prospect to Eugene. The system will become a part of The California Oregon Power Company system and thus be tied in with the various power houses of the larger company, insuring an abundant supply of electric energy for Roseburg and the Umpqua Valley.

It is expected that the transfer of the property will take place the first part of this month. The purchase price of the Douglas company properties, which include valuable undeveloped water rights and holdings on the Umpqua River, is \$600,000.

New Rate Schedule Requested by Idaho Power Company

The Idaho Power Company has filed a new schedule of rates with the Public Utilities Commission of Idaho, requesting that the rates go into effect, Oct. 1, 1923. The rates are to apply to all Idaho territory served by the company.

The company is basing the rates on a valuation of \$16,769,328.76. In the new rate schedule the company asks the Commission to fix the valuation of the company's physical assets as of Dec. 31, 1922, at this amount.

Thirteen classes of service are recognized under the proposed schedule. Residence lighting customers pay an initial rate of 10 cents per kilowatt-hour for the initial 12 kw.-hr., and this grades off to 4 cents per kilowatt-hour. The active-room principle is used in determining all residential rates. Two other classes of service are provided for in regard to residential customers, domestic heating and cooking service, and general residence service, each getting a special rate classification. Commercial power service, service to irrigation pumping plants and direct current installations each are the subject of separate schedules.

Convention Delegates See Steel Plant in Operation

About thirty delegates to the Pacific Coast Electrical Association convention were the guests of the Pacific Coast Steel Company, on a tour of inspection of the company's plant at South San Francisco, on June 21. The guests made a complete tour of the plant, visiting the open hearth furnaces, the rolling mills and the galvanizing works.

John A. Britton's Sudden Death Blow to Electrical Industry

John A. Britton, first vice-president and general manager of the Pacific Gas & Electric Company, died after a short illness at the Wakefield Sanitarium, San Francisco, on the morning of June 29, 1923. His death was both sudden and unexpected.

Mr. Britton was born in Roxbury, Mass., in 1855, coming to California thirteen years later. His education was cut short by the necessity of earning a living, but he studied stenography at night and later studied law in the office of Charles A. Lowe in San Francisco. He entered the public utility industry in 1870 as a collector for the Oakland Gas Company. From the position of bookkeeper he rose to secretary, in 1895 was appointed chief engineer, and in 1898 was elected president of the company. Upon the consolidation of the Oakland Gas Company with the California Gas & Electric Corporation a few years later, Mr. Britton was retained in the presidential chair. This process was repeated in 1905 with the Pacific Gas & Electric Company as the parent organization. In 1908 Mr. Britton changed his title to vice-president and general manager in order to keep in closer touch with the affairs of the company. He retained this position until his demise.

Mr. Britton was recently honored with election to the first vice-presidency of the National Electric Light Association. He was a member of the American Society of Mechanical Engineers and the American Institute of Electrical Engineers. He was also president of the Bohemian Club of San Francisco, and during his active career as a citizen of that city he served as chairman of the San Francisco Chapter of the Red Cross, a regent of the University of California and a director of the Panama Pacific International Exposition.

Large Substation Being Erected by Portland Company

Construction of a substation for the Northwestern Electric Company, at East 8th and Stark streets, is under way. Current will be stepped down from 11,000 volts to 2,400 volts for distribution to industries in the East side and the Peninsula district. According to L. T. Merwin, vice president and general manager, completion of the 13,000 hp. steam generating plant at the foot of Lincoln street was anticipated by adding 50 per cent to the company's electrical distributing area in the past six months. Total expenditures by the Northwestern Electric Company this year for extensions and improvements to facilities will approximate \$1,000,000.

Traveling Electric Home Planned by Association

California Electrical Cooperative Campaign Develops Idea of Uring Railroad Cars for Housing Electrical Exhibits

Plans for the conversion of two railroad cars into moving exhibits, one to exemplify the use of electricity in the home and the other electricity on the farm, are being perfected by the California Electrical Cooperative Campaign. The proposed step is being taken in order to spread the electrical message into the small communities and rural districts of the state where it is not feasible to exhibit an electric home.

The proposal as discussed at the meeting of the Advisory Committee of the Campaign in San Francisco, June 18, calls for the purchase of a 70-ft. standard Pullman car which is to be rebuilt according to the specifications of the Campaign. The car will be fitted up with a model kitchen, dining room and bedroom, completely furnished and completely equipped electrically. In addition the car will contain sleeping quarters for an attendant and storage room for a motion picture machine, screen and literature.

The other car will be a rebuilt baggage car, containing a model electrical laundry, a farm lighting set, an electric pumping plant and a utility farm motor set. Every phase of the use of electricity on the farm will be demonstrated in this car.

It is planned for the two cars to tour the entire state on a previously prepared schedule, stopping for a specified time in each community. Arrangements will be made with the central stations so that service can be supplied to the cars

as soon as they are side-tracked. Lecturers will be supplied in each locality by the central station and the local electrical industry.

The cars will operate in the same manner as a traveling show with advertising material, posters and publicity sent out in advance of the arrival of each car in any locality. Motion pictures will be shown outside the cars while visitors are being conducted through them in the evening.

It is hoped that an agreement can be reached between the Campaign and the National Electric Light Association or some other national organization to take over the cars following their exhibition in California and exhibit them in all parts of the United States.

The Advisory Committee of the Campaign authorized the employment of a field man to work in the San Joaquin and Sacramento valleys. The field man will have his headquarters in Fresno.

Two additional field men will be employed, one in San Francisco and the other in Los Angeles, to establish contact between the Campaign and the electrical contractor-dealers and others engaged in the retail distribution of electrical appliances. It will be the duty of these men to sell the Campaign idea to those with whom they come in contact.

The next meeting of the Advisory Committee will be held in Los Angeles on July 30.

Joint Sales Conference Is Held by Two Jobbing Firms

A two-day session, devoted to the discussion of sales problems, was recently held at Salt Lake City, Utah, by the Capital Electric Company of that city and the Butte Electric Supply Company of Butte, Mont. There was a large attendance of salespeople representing these two companies, in addition to the executives and department heads.

J. A. Kahn, president and manager of the Capital Electric Company, of Salt Lake City, presided at the sessions. Many interesting subjects were covered by the speakers, and the discussions which followed were of considerable educational interest and value to all present.

Engineers' Report on Northern Stream Is Prepared

The potential water power of the Big Horn River in Wyoming and Montana and its utilization are the subjects of a report just prepared by Benjamin E. Jones and David J. Guy, hydraulic engineers of the Department of the Interior. The engineers made a trip through the canyon of the river in 1921 and at that time secured data for the report. The report deals principally with this canyon.

The Big Horn River falls 450 ft. in the canyon and has a flow of 1,500 sec.-ft. for 90 per cent of the time and 2,475 sec.-ft. for 50 per cent of the time. Without storage the potential power for 90 per cent of the time at 70 per cent efficiency is 54,000 hp., and

for 50 per cent of the time it is 89,000 hp. Suitable dam sites are numerous and can be developed economically as soon as a market for the power is available.

The Big Horn Canyon Irrigation & Power Company proposes to build a dam near the mouth of the canyon to a height of 480 ft. above the foundation and 450 ft. above the low water surface of the river. Such a dam would utilize the entire fall in the canyon, and if the upper 200 ft. of the reservoir were used to store water the total flow of the river in years of low water could be equalized and a continuous flow of 3,100 sec.-ft. obtained. Such a dam would make available 84,600 hp. continuously. The proposed capacity of the turbines is 165,000 hp. It is also proposed to take water from the reservoir at a point 200 ft. above the river and carry it by canals down both banks to irrigate 60,000 acres of bench land between the canyon and Hardin, Mont.

The report considers plans for developing the potential power of the canyon by one, two, and three dams and points out the advantages and disadvantages of each plan. The plan of building a dam 160 ft. high at the mouth of the canyon, to be followed later by two dams, 85 ft. high and 175 ft. high, at sites farther upstream, would probably be the cheapest and best method of development if irrigation were disregarded, and it would also involve the lowest initial cost. A dam 480 ft. high is financially feasible if a market is available. On the assumption that a market is not now available for 85,000 continuous horsepower the government engineers recommend an initial development consisting of a non-over-flow dam 250 ft. high. This dam would be high enough to divert water to irrigate the bench lands below and would make available 50,000 hp. for 50 per cent of the time and 30,000 hp. for 90 per cent of the time. The cost would be as low as that of any other scheme considered. As the market for power grows the dam could either be raised to a height of 480 ft. or a second dam, 175 ft. high, could be built farther upstream. With two dams 55,000 hp. could be developed continuously except in years of very low water, compared with 85,000 continuous horsepower from a single high dam. The concrete in a single dam extending 450 ft. above low water would amount to 1,545,000 cu. yd. and that in two dams, 175 ft. and 250 ft. high, measured from low water, would amount to 615,000 cu. yd.

The Douglas Light & Power Company of Roseburg, Ore., has made application to the State of Oregon for a permit to appropriate 595 sec.-ft. of water from the North Umpqua River. The application asks for this amount of water in addition to the 705 sec.-ft. granted to the company under an old permit. The company plans to develop 2,289 hp. for light and power service in the adjacent territory.

The last 16,000-hp. unit in the San Francisco No. 1 Plant of the City of Los Angeles was put in operation, June 11. The generating capacity of No. 1 Plant is now 58,000 hp. The addition was completed in seven months from the time that the equipment was ordered.



Members of the sales forces of the Capital Electric Company and the Butte Electric Supply Company assembled at a banquet which closed the two-day conference held in Salt Lake City, Utah.

Discussion on Electric Trucks Opens Coast Convention

Preliminary to the opening of the Seventh Annual Convention of the Pacific Coast Electrical Association, the San Francisco Electrical Development League in conjunction with the Electric Transportation Association, was the host to the 600 convention delegates at lunch. The meeting was devoted to discussion concerning the advantages of the electric truck for short haul delivery service.

An electric truck parade was held just before the luncheon in which ap-

proximately 75 electric trucks, showing the diversified applications possible, parade before the people of San Francisco June 19

line trucks, while with electric trucks the same amount could be delivered for 40 cents.

The McGraw-Hill Company, Inc., has announced the purchase of Electrical Retailing, hitherto published in Chicago, by the Rodney Publishing Company. The service formerly rendered by this publication in reaching the strictly non-electrical retail distributing agencies will be continued in conjunction with the service rendered by Electrical Merchandising, giving the two publications 100 per cent coverage of the established electrical trade.



Approximately 75 electric trucks, showing the diversified applications possible, parade before the people of San Francisco June 19

proximately 75 trucks were entered. It was the largest electric truck parade ever held on the Pacific Coast.

R. E. Fisher, as chairman of the day, introduced Miner Chipman who spoke on the "Need for Accuracy in Determination of Transportation Costs." Mr. Chipman said that 2 per cent of the cost of any article can be charged to delivery of the merchandise and that the most difficult problem that will be met by electric truck salesmen is that operators do not know exactly what their delivery costs are.

E. J. Hancock, speaking on "Superiority of Electric Trucks for Frequent Stops and Short Haul Delivery," said that the average truck travels 25 to 30 miles per day and that the average speed is low. He claimed that traffic conditions could be speeded up if electric trucks were used as they can accelerate faster. George W. Banzhaf, vice-president and general manager of the Old Homestead Bakery, stated that the experience of his company, which is a large user of electric trucks, proved that the trucks were exceptionally economical and efficient. He stated that the average cost for operating the trucks was 3½ cents per mile. R. J. Workman, of the California Baking Company, found that it cost the company 67 cents per 100 lb. to deliver bread with gaso-

Rocky Mountain Section N.E.L.A. Sets Convention Date

Glenwood Springs, Colo., has been selected as the place for the 1923 annual convention of the Rocky Mountain division, National Electric Light Association, and the Colorado Public Service Association. The date has been set for Sept. 17-19.

This action was taken at a recent meeting of the two bodies at Denver which was attended by more than forty electrical and utility leaders. D. C. McClure, president-elect to succeed J. F. Dostal of the Colorado Springs Light, Heat & Power Company, who retires from office at the close of the fiscal year July 1, named the following committee in connection with the big convention: program, E. A. Phinney, chairman, of the Jefferson County Power & Light Company; transportation, Ray Morris, chairman, of the Mountain States Telephone & Telegraph Company; publicity and attendance, C. W. Bixler, chairman, of the Denver Gas & Electric Light Company; and entertainment, B. C. J. Wheatlake, chairman, of the General Electric Company, assisted by S. W. Bishop, executive manager of the Electrical Cooperative League of Denver, and George E. Lewis, executive man-

ager of the Rocky Mountain Committee on Public Utility Information.

President McClure presented several plans at the joint meeting for the annual meeting and then made several section appointments covering the administrative year July 1, 1923, to June 30, 1924. He announced the policy of a two-year incumbency where possible for several of the appointees. The Rocky Mountain division will have but one acting vice-president after July 1 and until the convening of the Glenwood Springs convention in the fall.

O. A. Weller, of the Denver Gas & Electric Light Company, was reappointed secretary. Following is a list of Mr. McClure's appointments: Accounting section, chairman, E. J. Rosenauer of the Southern Colorado Power Company; vice-chairman, J. E. Loiseau of the Denver Gas & Electric Light Company; Commercial section, chairman, E. H. Coe of the Colorado Power Company; vice-chairman, Charles Two-good, Albuquerque Gas & Electric Company; Public Relations section, chairman, E. A. Phinney of the Jefferson County Power & Light Company; vice-chairman, C. A. Semrad of the Western Light & Power Company; Technical section, chairman, H. H. Kerr of the Denver Gas & Electric Light Company; vice-chairman, J. A. Clay of the Western Colorado Power Company.

F. A. Tewksbury of the Denver Gas & Electric Light Company was appointed chairman of the accident prevention committee and W. E. Robertson, of the Colorado Power Company, was appointed vice-chairman. George E. Lewis, of the Rocky Mountain Public Utility Information Committee, was named chairman of the membership committee and Mr. Weller was made vice-chairman. Carl Luscomb, of the Western Light & Power Company, was selected to head the rural lines committee and Ralph Y. Poole, of the Colorado Springs & Interurban Railway Company, was made vice-chairman.

Mr. Bishop was appointed chairman of the wiring committee and J. J. Cooper, of the Mountain Electric Company and chairman of the Electrical Cooperative League of Denver, was named vice-chairman.

Plan to Build Electric Smelter at Utah Junction, Colo.

An electric smelter, designed to have an ultimate capacity of 1,500 tons daily, is to be constructed at Utah Junction, Colo., by the American Electric Smelters & Refining Company. It is reported that construction will start in the near future. The initial installation will be a unit having a capacity of 100 to 150 tons daily. Other units will be added as they are needed.

Frank P. Bertschy, president of the smelter company, has announced that the company plans the transformation of one of the coal furnaces now in use in Utah Junction into an electric furnace. It is Mr. Bertschy's belief that within a year and a half the smelter will have a capacity of 1,500 tons daily.

A study concerning the electrification of the smelter is being made by Robert M. Keeney, industrial heating engineer of the Westinghouse Electric & Manufacturing Company. It is the contention of the designers of the plant that it can be operated more cheaply than can an last furnace smelter.

Preliminary Permit for Project in Colorado Requested

Application for a preliminary permit to divert Cabin, Middle St. Vrain and North St. Vrain Creeks, in Boulder County, Colo., to a common pipe line and tunnel leading to a power house on the latter stream, has been made to the Federal Power Commission by Messrs. Gay, Otto and Diefendorf. The applicants propose to develop about 5,000 hp. This project will be located between two projects proposed by Mrs. Alice B. Jones, for which application is now pending. The applicants are expected to cooperate, with a view to carrying out the three projects as a unit.

The Southern Sierras Power Company has applied to the Commission for a permit to relocate a section of its main transmission line to the Imperial Valley, California. The change will be over a section 10 miles long and is being made to place the line near the new state highway in Riverside County.

B.C. Electric Railway Plans to Increase Power Capacity

Extensive power development plans have been formulated by the British Columbia Electric Railway Company of Vancouver, B. C., and include the development of 115,000 hp. on the Stave River and tributaries. The program of development calls for an expenditure of approximately \$10,000,000 and will take care of the anticipated power requirements of the lower mainland of British Columbia for the next ten years.

The British Columbia Electric Railway Company took over, in 1920, the Stave Falls plant of the Western Power Company of Canada, consisting of four 13,000-hp. units. This plant was increased, in 1922, by the installation of a fourth unit, and since then work has been going on raising the dam 35 ft. and building the Blind Slough dam, thus increasing the water storage approximately 50 per cent. This work is costing \$1,000,000, but with the present and anticipated power demand, further development will be needed at an early date.

An application is now pending before the provincial authorities for permission to proceed with the first unit of the greater scheme. This is the Alouette Lake plant. Alouette Lake is situated adjacent to Stave Lake and at its northerly end is only about half a mile distant. The water rights on Alouette Lake have been owned by the Burrard Power Company, a subsidiary company to the British Columbia Electric Railway Company, for some years. It was the original intention to develop power on Alouette Lake by means of a dam and flume, but with the acquisition of the Stave Lake plant it becomes possible to tunnel through the mountains between Stave and Alouette Lakes and divert the water by this means. Provided authority is obtained, a plant of 10,000 hp., operating on an 80 per cent load factor, will be built at the Stave Lake end of the tunnel utilizing 140-ft. head.

The additional water obtained from the Alouette Lake will be made use of in a fifth unit adjacent to the present plant, which will be the second step in the development. By operating on a lower load factor, 25,000 hp. can be in-

stalled. Provision is now being made for a single penstock in the work now going on in raising the present dam.

Surveys are also being made for the building of a third unit plant three miles below the present Stave Falls Plant, thus using Alouette Lake water the third time and Stave Lake water the second time. Approximately 80,000 hp. will be developed at this plant, and the total flow from lake to tide water will be made use of in it. This flow will be approximately 260 ft., of which 150 ft. will be made use of in the upper plant, and the balance in the lower plant.

The work on the Blind Slough is being done under the supervision of R. S. Kelsey of Montreal, consulting engineer, while E. E. Carpenter, formerly of the firm of Baker & Carpenter, San Francisco, has been appointed chief electrical engineer for the company, and will have direct charge of the new work.

Irrigation District Directors Dedicate Don Pedro Dam

Dedication exercises for the Don Pedro Dam, on the Tuolumne River, 44 miles from Modesto, Calif., were conducted by directors of the Modesto-Turlock Irrigation District on June 25. The dam is the property of the irrigation district.

Building of the dam was started in June, 1921, and since that time approximately \$4,500,000 has been spent in erecting the structure. The newly formed reservoir covers an area of approximately 3,276 acres and has a capacity of 285,000 acre-feet of water.

The dam, which is 284 ft. high, 1,040 ft. long, 176.6 ft. thick at the base, and has a radius of 657 ft., impounds water for a stretch of 15 miles. A power house has been built at the foot of the dam which will ultimately develop 70,000 hp. of electrical energy.

Association of Electragists to Hold Regional Meetings

James R. Strong, president of the Association of Electragists International, and Lawrence W. Davis, director of that organization, will start on a western tour on July 13. The purpose of the trip is to hold regional meetings of the membership in the regional headquarters. Dinner meetings will be held wherever possible.

The regional meetings will be held as follows: Mountain Division, Denver, Colo., July 16; Intermountain Division, Salt Lake City, Utah, July 18; Southern Pacific Division, Los Angeles, Calif., July 20; Central Pacific Division, San Francisco, Calif., July 23; Northern Pacific Division, Portland, Ore., July 25; Northern Pacific Division, Seattle, Wash., July 26; Western Canada Division, Vancouver, B. C., July 27.

Ray P. Jackson, superintendent of the Westinghouse High Voltage Insulator Company plant, at Emeryville, Calif., spoke before the Electrical Club of Oakland, on June 25. He explained the manufacture of high voltage porcelain insulators and described plans and the plant of the Westinghouse Company, at Emeryville. The present plant of the Westinghouse Insulator Company, in Emeryville, has cost about \$140,000, while the special machinery necessary to complete the factory will double this investment.

Date Set for Seattle Electric Home and Appliance Show

The Seattle electric home and electric show will be held Aug 25 to Sept. 8, inclusive, according to W. E. Jones, president of the Electric Club of Seattle. Mr. Jones recently announced that plans are being formulated for the erection and completion of the electric home and for the demonstration in conjunction with the home. The show will be under the auspices of the Electric Club of Seattle.

Work has already been started on the electric home which will be located on the corner of University Way and 10th Avenue Northeast. This structure, to be erected by Gardner J. Gwinn, the designer and builder, will be built to sell for \$9,000, exclusive of furnishings and electrical equipment. It will contain seven rooms, all located on one floor.

Adjoining the electric home proper will be erected a large tent wherein will be exhibited and demonstrated the latest in electrical devices and appliances. Visitors to the home will be entertained in this exhibition and demonstration tent while awaiting their turn to enter the home.

The electrical exhibits will be furnished by local jobbers, dealers and manufacturer's representatives. The following appliance committee has been appointed: J. R. Wells, Fobes Supply Company, chairman; V. E. McCain, Western Electric Company; George Reiniger, Globe Electric Company. This committee will have entire charge of selecting and placing the appliances to be exhibited and used in the electric home.

The executive committee of the electric home includes: W. M. Meacham, of Meacham & Babcock, chairman; J. R. Wells, V. E. McCain, S. P. Russel, of the Pacific States Electric Company, George Reiniger, C. H. Birkel, of the Birkel Electric Company, J. R. Grant, of the Puget Sound Power & Light Company, J. D. Ross, superintendent of the Seattle Municipal Lighting Department, Harry Byrne, of the North Coast Electric Company, and W. E. Jones, of the Economy Fuse Company.

Various other committees to carry out the details involved in the construction and furnishing of the home will be named at a later date.

Portland Power Company Making Survey of Power Site

Engineers for the Pacific Power & Light Company are making surveys over a ten-mile area along the Deschutes River, in Oregon, in the vicinity of Ketchum station, about 20 miles from the mouth, with a view to ultimate construction of a hydroelectric power plant to cost between \$2,000,000 and \$3,000,000.

The Pacific Power & Light Company filed on power rights at this point more than a year ago. No definite assurance was available that immediate construction of the plant is contemplated. The proposed power plant would develop 40,000 hp.

A transmission line is to be constructed between Umatilla and The Dalles by the Inland Power & Light Company, the newly incorporated concern which is affiliated with the Pacific Power & Light Company.

Larger Membership Sought by Contractor-Dealers

Delegates at Donner Lake Convention Discuss Future Activities and Vote to Cooperate with Other Organizations

Plans for an enlarged membership, embracing all phases of retail distribution and the electrical contracting fraternity, with 1,000 members as a minimum, were adopted at the annual convention of the Northern section of the California State Electrical Contractors and Dealers Association, held at Donner Lake, June 11-16. Details of a membership campaign are being worked out by J. W. Redpath, executive secretary of the organization, and will be passed upon at a meeting of the execu-

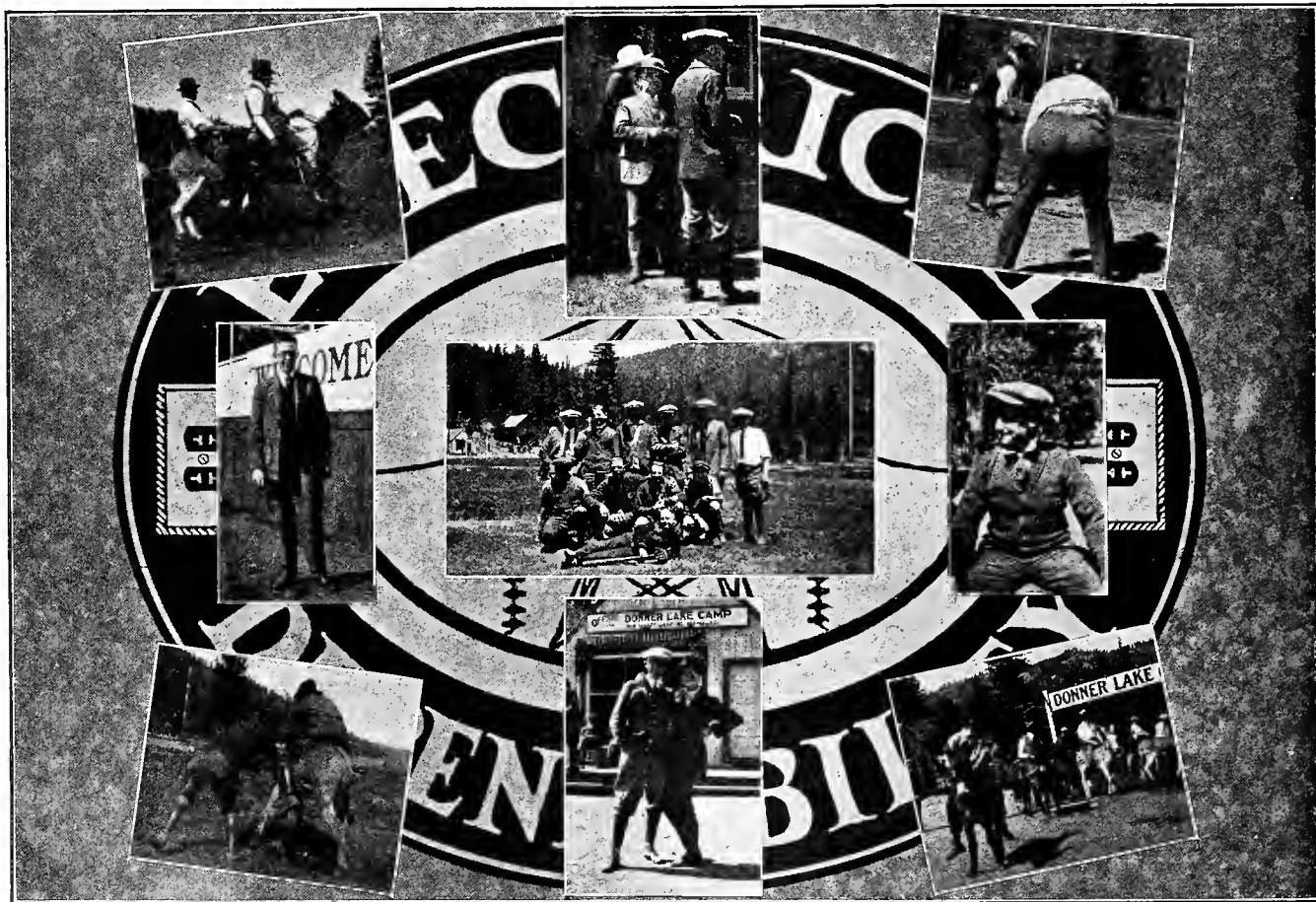
blackboard talk on some of the accounting problems of the contractor-dealer. He declared that a proper accounting system, by means of which the contractor-dealer can readily determine such important factors in his business as overhead, rate of turnover and profit, is the best method to eliminate low-figure, below-cost bidding and destructive competition.

Clyde Chamblin, of the California Electrical Construction Company, San Francisco, former president of the asso-

sion Engineering Department. C. L. Fortescue has been appointed manager of the new department.

This new department, according to the announcement, will handle the design of line insulators and other work which may be assigned to it from time to time in connection with transmission problems.

The company has also made announcement of the recent acquisition of the plant of the Savage Arms Corporation, at Sharon, Pa. A large force of workmen is now engaged in remodeling and equipping the plant for the manufacture of transformers. It is expected that the plant will be in operation next fall.



CONTRACTOR-DEALERS CONVENE AT DONNER LAKE

Top, from left to right: "Bob" Eltringham leading the race. Henry Elkin, secretary of the San Francisco Contractor-Dealers and Art Rowe, watching the fun. Over the plate at the ball game. Center, from left to right: Victor Lemoge, newly elected president. The championship ball team.

Earl Browne, retiring president, displaying the stickpin presented him by his fellow members. Bottom, from left to right: Somebody is about to be thrown. Frank Boyd and Jimmy Redpath pose for a picture. The start of the donkey race in which no one finished.

tive committee, to be held during July. The association also voted for closer cooperation with the California Electrical Cooperative Campaign.

The convention opened with a business session on the morning of June 11, the chief feature of which was the reading of the secretary's report for the year and an address by Robert Eltringham, secretary-manager of the Cooperative Campaign. Mr. Eltringham outlined the position of the Campaign with reference to the existing associations, and dealt to some extent with the problems which the contractor-dealers are facing at the present time.

The open meeting, Tuesday, June 12, was devoted to an address, entitled "Some Cold Facts," by F. V. Mitchell, San Francisco accountant, who gave a

ciation and delegate to the convention of the Association of Electragists—International, reported on the sessions of the national body and urged that contractor-dealers consider the advisability of joining this organization.

At the election of officers, Victor Lemoge, San Francisco contractor, was elected president for the coming year.

New Department Is Organized by Westinghouse Company

The creation of a new engineering department in the organization of the Westinghouse Electric & Manufacturing Company has been announced by R. S. Feicht, director of engineering. The new department will be known as the Porcelain Insulator and Transmis-

The transformer division of the Westinghouse company will be transferred to Sharon, according to officials of the company, and a force of about 3,000 persons will be employed there. C. H. Champlain, assistant works manager at the East Pittsburgh works, has been appointed works manager at the new plant. M. L. Fawcett, general foreman of the transformer department, has been named superintendent of the new works.

Sale of the Keto and Ankeny Canals, in Oregon, to The California Oregon Power Company, was recently authorized by Secretary of the Interior Work. The power company will pay \$120,620 for the two canals, located in the Klamath irrigation district.

Meetings

Contractors' Association Formed in San Diego County

Indorsement was unanimously accorded the newly formed Electrical Contractors' Association of San Diego County, when the plan of its organization and its purpose was outlined before the June 12 meeting of the San Diego Electric Club. Carl Heilbron, president of the newly organized association, was chairman of the day for the Electric Club, presenting the case for the association as his day's feature.

Purposes of the association were stated as being for the promotion of more business for the electrical contractors through harmony and team work. Feeling that cooperation rather than competition would make for fairer treatment for all concerned, an effort will be made to enlist in the association all the electrical contractors of the county.

It was emphatically stated in the meeting that the object of the association was not that of fixing rates. A basis of fair price for quality standard work, however, is to be determined from careful comparison of costs under association scrutiny. In this way an understood minimum will be determined under which no member of the association will cut for the mere sake of temporary advantage.

The code of ethics under consideration by the association states that: "It shall be our aim at all times to so transact business that it shall not bring us unfavorably before the industry, and ever mindful of the confidence reposed in us, we will so conduct ourselves and our business as to prove worthy of the support and consideration of members, not only of the electrical industry, but industry generally."

Further provisions of the code define the obligations of members to the public and to themselves, and to the safeguarding of life and property through observance of safety regulations. Members are cautioned against evasion of recognized rules governing electrical work and commanded to uphold the highest ethical business standards in all dealings with both the public and themselves.

Considerable discussion followed the presentation of the association's plans before the Electric Club. This discussion centered largely about the methods the association proposed to use and its possible influence through the enlisting of sufficient contractors to make the movement practical. A vote of the club unanimously indorsed the new organization at the close of the meeting.

The Electric Club, with this meeting, June 12, ceased active operations as a club for the summer. There will be no more meetings, it was decided, until September.

Benn Brothers, Ltd., 8 Bouverie St., London, have recently published "The Blue Book," an electrical trades handbook and directory for 1923. The book contains lists of British power projects, both developed and projected, British,

Colonial and Continental power companies, British and foreign electrical railways, electrical manufacturers and engineers. The price of the book is 25 shillings, net.

Electrical Men of Casper, Wyo., Organize Electric Club

The second organization to develop the "Electrify" movement in Wyoming is the Casper Electric Club. The leading contractor-dealers and representatives of the central station in that city are behind the movement. Several preliminary meetings were held at which representatives of various manufacturers and jobbers doing business in the territory were present. Information on the activities of similar organizations and especially the Electrical Cooperative League of Denver was provided in order that a definite program could be established for the new club.

W. J. Sherwood, city electrician, was elected president and the other officers are P. M. Van Sickle, vice-president, and J. B. Flannagan, American Electric Company, secretary and treasurer. Dinner meetings are held weekly.

COMING EVENTS

Rocky Mountain Division—National Electric Light Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

Colorado Public Service Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

American Institute of Electrical Engineers—

Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

The Pacific Northwest Merchant's Convention will be held in Seattle, Wash., July 23-28, at the Bell Street Terminal, and is expected to set new records for this annual event. Last year, 3,000 merchants from out of town registered, and at least 5,000 are expected this year. The show last year drew an attendance of 300,000 people. Purchases of nearly \$1,000,000 were made by merchants from other communities during last year's show.

The final joint meeting of the season of the Portland, Ore., branches of the A.I.E.E. and N.E.L.A. was held June 7 and consisted of an informal dancing and card party on the river. The meeting was well attended by younger men and ladies. The following officers of the A.I.E.E. section were announced by the nominating committee to serve for the coming year: E. F. Pearson, president; Harry P. Cramer, secretary-treasurer; John Bankus and Tom Perry, executive board.

A demonstration, showing the method of transmitting photographs by telegraph, was presented to the San Francisco Electrical Development League, by Leroy J. Leishman, on June 25. Mr. Leishman, through the use of a sending and receiving machine, sent a picture of a thumb-print from one end of the room to the other. The processes involved in telephotography were completely explained by the speaker. George C. Tenney, associate editor of the Journal of Electricity, acted as chairman of the day.

Electrical Men of Los Angeles Enjoy Evening Meeting

One of the most enthusiastic meetings ever held by the electrical industry in Los Angeles was held recently at the Elite Cafe. Three hundred and eight members from the various branches of the industry gathered for an evening of instruction and entertainment.

On one side of the banquet room was arranged a platform on which members of the Electric Club conducted a minstrel show with Allan E. Morphy as interlocutor, and the following as endmen: Percy H. Booth, Pacific Coast manager, Edison Electric Appliance Company; L. E. Darrow, Western Electric Company; John M. Morris, Westinghouse Electric & Manufacturing Company, and R. R. Lockhart, Western Electric Company. The chorus was headed by K. E. Van Kuran of the Westinghouse Electric & Manufacturing Company, and "Shorty" Sherman of the Illinois Electric Company, who were assisted by the "Check Seal" quartette, of the Pacific States Electric Company.

The unique way in which the various speakers of the evening were introduced through the clever manipulation of Mr. Morphy and his endmen proved to be a sensation.

The speakers of the evening were: George K. Kuhrts, vice-president and general manager of the Los Angeles Railway Company, who spoke on behalf of the electric railways; N. R. Powley, commercial superintendent of the Pacific Telephone & Telegraph Company; Robert L. Eltringham, manager California Electrical Cooperative Campaign; and G. E. Arbogast, president of Newberry Electric Corporation.

Prior to presentation of each speaker, appropriate jokes were cracked by the minstrel, who kept the crowd laughing and thus enabled the speaker to get his message across in such a way that the audience stayed until the final event of the evening.

The idea of presenting the speakers in this manner was a new one in this section, and was evolved by Messrs. Booth and Van Kuran, who with the aid of a committee consisting of J. G. Loomer, R. R. Lockhart, L. E. Darrow and L. S. Ardouin, created the various jokes and arranged for the songs.

As each speaker was called from the audience to the platform he was greeted with the song, "Old George Kuhrts ain't what he used to be 45 years ago, etc.", "For he is a jolly good fellow," etc.

Officers for the coming year were elected by the Spokane, Wash., section of the American Institute of Electrical Engineers at a banquet held in that city recently. The newly elected officers are: E. R. Hannibal, superintendent Interstate Utilities Company, chairman; G. S. Covey, service department, Washington Water Power Company, vice-chairman; J. S. McNair, engineering department, Washington Water Power Company, secretary-treasurer. The executive committeemen elected are: Joseph Wimmer, engineering department, Pacific States Telephone & Telegraph Company; J. W. Hungate, superintendent, Spokane & Eastern Railway; J. B. Fiske, and H. L. Melvin, consulting engineer and electrical engineer, respectively, of the Washington Water Power Company.

Personals

A. B. Gray, electrical engineer of Seattle, is a recent San Francisco visitor.

D. E. Harris, vice-president and sales manager of the Pacific States Electric Company, San Francisco, attended the recent convention of General Electric jobbers at Association Island.

H. S. Sands, one of the Westinghouse company executives in Denver, is a member of the engineering board supervising the design of the new electric smelter to the built near Denver.

George E. Honn, formerly assistant manager of the tower department, Pacific Coast Steel Company, has been made manager, succeeding **C. A. G. Weymouth**, resigned. Mr. Honn is already well known in the electrical industry and has a well rounded experience in electrical transmission work. During the period from 1911 to 1918, he was employed in the engineering, line construction, general construction, and maintenance departments of Pacific Gas & Electric Company, on the South Yuba-Bear River development and other projects. In 1918 he resigned to accept a position with the Pacific Coast Steel Company, in the tower department, being stationed at the tower plant. The latter part of the same year he came to the city office as assistant manager, which position he held until his recent promotion. Mr. Honn will be assisted in his new duties by **H. G. Sharp**, sales engineer, and **T. H. Armstrong**, designing engineer, both already being in the employ of the tower department. Mr. Sharp, during the 16 years previous to his coming with Pacific Coast Steel Company, was identified with Pacific Gas & Electric Company, Great West-



GEORGE E. HONN

ern Power Company and California Oregon Power Company in transmission line work. Mr. Armstrong has been in charge of the engineering in the tower department for two years past, and is rounding out his seventeenth year of activity in structural steel work, the past five years of which have been devoted entirely to transmission tower engineering.

W. R. Putnam, vice-president and general manager of the Idaho Power Company, Boise, has been elected vice-chairman of the commercial section of the National Electric Light Association.

John B. Miller, president of the Southern California Edison Company, was one of the principal speakers at the public relations meetings of the National Electric Light Association convention in New York.

J. E. E. Royer, assistant to the general manager of the Washington Water Power Company, Spokane, attended the National Electric Light Association convention in New York during June.

R. E. Renz, formerly chief electrician and master mechanic of the Butte & Superior Mining Company, Butte, Mont., and more recently with the Southern California Edison Company, has joined the Spokane, Wash., office of the Westinghouse Electric & Manufacturing Company as sales engineer.

Ernest L. Dee, Salt Lake district sales manager of the Edison Lamp Works, has returned from the meetings of district sales managers at Harrison, N. J. Mr. Dee also attended the meetings of the General Electric Company district managers at Association Island.

N. C. Grover, chief hydraulic engineer, United States Geological survey, whose offices are in Washington, D. C. was in Salt Lake City the latter part of May conferring with **Ralf R. Woolley**, hydraulic engineer, and **A. B. Burton** of the survey. He discussed the subject of stream gaging with Mr. Burton and that of land classification with Mr. Woolley.

Edward J. Wilson, of the Wells-Morris Manufacturing Company of San Francisco, was a recent Los Angeles visitor.

J. A. Cranston, manager of the Portland office of the General Electric Company, is spending several weeks in San Francisco and Los Angeles.

W. Brewster Hall, district sales manager of Pass & Seymour, Inc., Solvay, N. Y., is a recent Pacific Coast visitor.

J. F. Orr, general sales manager for the Idaho Power Company, has returned to his offices in Boise, after attending the convention of the National Electric Light Association in New York.

F. M. Feiker, formerly vice-president of the McGraw-Hill Company, Inc., and more recently on leave of absence as special agent to the Department of Commerce at Washington, after his return from Washington will be associated with the staff of the Society for Electrical Development, New York City. Through the appointment of Mr. Feiker, the various branches of the electrical industry served by the Society will secure the benefit of Mr. Feiker's experience and background, and in addition he will have a unique opportunity to act as a special counselor to all branches of the electrical industry, putting at the service of the engineers, the manufacturers, central stations, jobbers, contractor-dealers and publishers, his special training and wide knowledge in the publishing and public relations fields of many industries. Mr. Feiker will retain a consulting relation to the McGraw-Hill Company, Inc., and he will continue in a similar capacity his relation to the problems of personnel and organization of the Department of Commerce at Washington.

E. F. Pearson, electrical engineer with the Northwest Electric Company of Portland, Ore., who has served during the past year as secretary-treasurer of the Portland section of the American Institute of Electrical Engineers, was recently elected chairman of the local section. He attended the annual convention at Swampscott, Mass., as official delegate from Portland. Mr.



E. L. PEARSON

Pearson received his early technical training from the University of Nevada, from which school he received the degree of B.S. and E.E. In 1912 he entered the employ of the Northwestern Electric Company as field engineer on transmission and distribution work. Later he was advanced to the position of assistant superintendent of transmission and distribution. When this country entered the war, Mr. Pearson received the commission of First Lieutenant of Engineers, was assigned to the 316th Engineers, 91st Division. Before leaving for France, he was promoted to Captain of Engineers and in that capacity saw active service on three front line sectors with the 91st Division. When Mr. Pearson returned to Portland in 1919, he re-entered the employ of the Northwestern Electric Company, this time as electrical engineer, which position he still holds. His work includes the supervision of the electrical and mechanical design of all branches of the company's business.

Dean D. Clark of the Mountain States Telephone & Telegraph Company, **E. W. Brown** of the Hendrie & Bolthoff Company, **R. S. Rubincam** of the Mine & Smelter Supply Company, and **H. W. Thompson** of the Denver Gas & Electric Light Company represented the electrical industry of Denver on the recent trade tour conducted by the Civic & Commercial Association of that city through Wyoming and western Nebraska. Over 100 business men made up the pilgrimage which started from Denver June 17.

J. A. Kahn, president of the Capital Electric Company, Salt Lake City, attended a meeting of the General Electric Company jobbers at Association Island.

A. J. Wiley, hydraulic engineer of Boise, Idaho, has been retained in a consulting capacity by the City of Logan, Utah, regarding the new hydro-electric plant which the city plans to install.

A. S. Moody, assistant Northwest manager of the General Electric Company, has been appointed local manager of the Los Angeles office of the same company, to succeed R. J. Cash, who has been transferred to Schenectady. Mr. Moody is well known in the electrical industry on the Pacific Coast, having been identified with the General Electric Company in that section for



A. S. MOODY

the past 16 years. He graduated from the University of California, with the class of 1906, with a B.S. in electrical engineering, following which he went with the Stanley G. E. Company. When this company was taken over by the General Electric Company, in 1907, he became sales engineer in the San Francisco office, and in 1908 he was transferred to the Seattle branch with a similar position. He went to Portland in 1910 as manager of the supply department, and in 1920 he was made assistant Northwest manager, which position he held up to the time of his recent promotion. Mr. Moody has taken an active part, during the past few years, in the affairs of the Northwest Electric Light & Power Association and the American Institute of Electrical Engineers, being a past chairman of the Portland section of the latter organization. His successor in the Portland office has not been appointed.

K. A. McIntyre, field representative for the Society for Electrical Development, is making a tour of the western cities. Mr. McIntyre has visited Denver, Salt Lake and San Francisco, and in each of these cities gave interesting talks on the functions of a cooperative organization. While in San Francisco, he spoke before the Advisory Committee of the California Electrical Cooperative League and before the commercial section of the Pacific Coast Electrical Association.

O. C. Small, of the staff of the Society for Electrical Development, will leave New York City, July 1, for an extended tour of the country. In the West, Mr. Small will visit Phoenix, Prescott, Los Angeles, San Diego, San Francisco, Portland, Seattle and Vancouver.

Frank Merkel of the Electrical Trade Publishing Company of Chicago, publishers of Jobber Salesman and other electrical publications, was a recent Los Angeles visitor.

Miss Bernice Lowen, electrical cooking expert representing the Edison Electric Appliance Company spent several weeks in the territory of the Utah Power & Light Company during the latter part of May and the early part of June, demonstrating to the company's employees and to the public some of the phases of the culinary art. At Salt Lake City and several other towns in the company's territory sessions were held which were very well attended. A feature of the Salt Lake City demonstration was an electrically-cooked luncheon to the Utah Power & Light Company's local employees.

F. S. Mills, western district manager of the National X-Ray Reflector Company was the principal speaker at the monthly meeting of the Rocky Mountain Electrical Cooperative league, held at the Commercial Club on the evening of May 24. Mr. Mills gave a very interesting talk on lighting, and discussed many phases of the art. Correct store and window lighting were stressed by the speaker, and demonstrations were conducted by means of the specially-built window display which has been used on several occasions by the League people.

C. E. Spaulding, building material specialist of the General Electric Company, Los Angeles, has gone East to visit the plants of the General Electric Company at Schenectady and Bridgeport.

W. G. Lane, oil well equipment specialist, Los Angeles office, General Electric Company, has just recently returned from an extended trip in the East visiting the various factories of the company.

C. L. Burgess of the department of publicity, Los Angeles office, Westinghouse Electric & Manufacturing Company, is on a trip to Pittsburgh where he will become familiar with the newly established plans of the publicity department.

E. R. Northmore, superintendent of distribution of the electrical department of Los Angeles Gas & Electric Corporation, has just recently returned from an extended trip East. While in the East Mr. Northmore attended the National Electric Light Association Convention in New York and the Shriners' convention in Washington. He also visited Boston, Chicago and other eastern cities.

Harry L. Harper, manager of the Los Angeles office, Western Electric Company, has just recently returned from an extended trip East where he visited the various plants of the Western Electric Company, and the general offices in New York. While East Mr. Harper attended the National Electric Light Association convention in New York and the Electrical Jobbers' meeting at Hot Springs, Virginia. Mr. Harper also visited Kansas City, Washington, Chicago and other eastern cities.

Coake Flannigan of the engineering department of the Western Electric Company of New York City, is now in Los Angeles supervising the installation of the public address system in the recently completed Coliseum. The Coliseum seats 75,000 people and will be used during the approaching Monroe Centennial Exposition, and for all public gatherings and entertainments.

R. E. Pease, of the Arnold Electric Company, Racine, Wis., is visiting various Pacific Coast cities.

Obituary

W. R. Abbott, veteran manager of the Denver branch of the American Steel & Wire Company, died in that city June 18 after a short illness. Mr. Abbott took an active part in the affairs of the Colorado Public Service Association and various civic organizations in Denver.

Chester Hicks Pennoyer, Pacific Coast representative for the National Conduit & Cable Company for the past 17 years and one of the pioneers in the electrical industry in California, died of heart failure during the recent Pacific Coast Electrical Association convention in San Francisco. Mr. Pennoyer was born in San Jose, Calif., in 1873. In 1892 after being graduated from high school, he entered the employ of the California Electric Light Company in San Francisco as superintendent's clerk under George H. Roe. When that company became the Edison Light & Power Company in 1894, Mr. Pennoyer was made purchasing agent, a position which he held until 1898, when the utility was consolidated with the San Francisco Gas Light Company, forming the San Francisco Gas & Electric Light Company. He left this firm in 1902 together with F. H. Woodward, J. E. Green, A. Nichols and R. F. Manifold, going to San Jose where they took over the Electric Improvement Company and the San Jose Light & Power Company, forming the United Gas & Electric Company. This central station operated in Santa Clara and San Mateo counties, with Mr. Pennoyer as vice-president and general manager. The company also operated the Standard Electric



CHESTER HICKS PENNOYER

Company of San Francisco. With the formation of the California Gas & Electric Corporation in 1906 Mr. Pennoyer left the central station field to become Pacific Coast representative for the National Conduit & Cable Company, a position which he held until his demise. He was a thirty-third degree Mason and a member of the Pacific Coast Gas Association.

Manufacturer, Dealer and Jobber Activities

The Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has issued the following leaflets for the trade: No. 1161-A, large squirrel-cage induction motors, type CS; No. 3400, type F-10, oil circuit-breakers; No. 1611, type AF automatic auto-starters for polyphase squirrel-cage induction motors; No. 1765, motors for Westinghouse-Baldwin mine locomotives (900 Series); No. 2390-A, Type E engine-driven a. c. generators, and No. 3499-A, type CS control switches.

The Apex Electrical Distributing Company, of Cleveland, Ohio, has recently announced a new model Rotarex washer. The new machine is called the M-2 and the chief variation of design is the all-aluminum cylinder. In the new machine there are no wooden ribs or holes in the circumference of the cylinder. Holes that permit the water to enter the cylinder are in the ends of the cylinder.

The Manhattan Electrical Supply Company, Inc., New York, has recently published Catalog No. 31. The publication is divided into six schedules, covering the line of electrical equipment handled by the company.

The Thor Electric Shop, operated in Salt Lake City, Utah, by P. O. Perry, has recently moved to 319 South State Street in that city. Hurley Machine Company products are handled by the retail store, Mr. Perry being the state agent for the manufacturer. The Thor Electric Shop was formerly located at 113 South Main Street, in Salt Lake City.

The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., has made O. T. Jenkins, 1002 Pacific Avenue, Dallas, Tex., its agent for Texas and Oklahoma. The agency covers the sale of wiring devices, radio apparatus and standard industrial heating apparatus.

C. Brandes, Inc., of New York, N. Y., has recently acquired rights to a newly patented head-set for telephone and radio use. The new design permits better adjustments of the receivers to the ears of the user. The design includes an improvement in the padding in the headband.

The White Lily Manufacturing Company, Davenport, Iowa, has announced that H. W. Eden, of Chicago, Ill., has recently affiliated himself with the company. Mr. Eden has assumed charge of the manufacturing end of the White Lily company. Mr. Eden is one of the best known washing machine experts in the United States and has secured 19 patents on washing machines. He has been the manufacturer of the Eden and Butterfly washing machines.

The Western Electric Company, New York City, recently placed on the market an electric ironer designed for the small home. The ironer has an open end roll that is reversible. The ironer is made in one size only, the roll being 28 in. long. The company is also offering a new 8-in. induction electric fan, that combines the features of the larger fans of this type with the low price of the small fan.

The Bard-Parker Company, Inc., New York, N. Y., has placed on the market a wire insulation stripper. The action of this stripper is similar to that of a pair of pliers. The wire end to be stripped is inserted between the grip and cutter-blade and the motion of compressing the handle automatically cuts and strips the insulation, at the same time holding the wire against jerking. The stripper blades are provided with notches through which the copper passes while the insulation is being stripped. These blades are made up with three holes to accommodate the different sizes of wire in common use. Separate blades are also available for all B. & S. wire gages, from No. 10 to 24.

The Radio & Phonograph Company, Detroit, Mich., through Edward H. Jewett, has recently purchased the De Forest Radio Telephone & Telegraph Company. Mr. Jewett plans to extend the De Forest business considerably.

The Economy Fuse Company, Seattle, Wash., formerly located at 935 Henry Building, has moved to larger quarters at 933 of the same building. W. E. Jones is manager of the company.

The United Electric Company has recently been incorporated by W. J. Keating, A. P. Ware and S. S. Keating of Denver, Colo. It is understood that a line of lighting fixtures and parts will be distributed and that a manufacturing plant and plating works will be operated. W. J. Keating was formerly one of the executives of the Electrical Supply & Construction Company of Denver.

Curry & Coutellier, producers of Chrystal Radio-Argentite for radio-phones, have established an office and laboratory at 2843 West 9th Street, Los Angeles, Calif.

B. F. Sturtevant Company, Inc., Hyde Park, Boston, Mass., has announced the addition of the Design 5 Turbované, to its line of forced draft fans. The new Turbované is an improvement on the Design 4, which has been giving efficient service to users for the last five years.

The Electrovent Company of Cleveland, Ohio, has recently placed on the market a new corn popping machine which is designed to supply 50 bags of popcorn per hour. The machine is automatic and is controlled by a single push-button. The heating element is so arranged that popping starts within approximately three minutes after the current is turned on.

The Janesville Caloric Corporation, Janesville, Wis., has announced that it will start a nation-wide sales campaign to increase the distribution of the products manufactured by the company. The company is now producing the Caloric fireless cooker, the Caloric electric cooker and an electric dish-washer.

Wagner Electric Corporation, St. Louis, Mo., has prepared for distribution, Bulletin No. 132 which describes the company's line of Pow-R-full motors. The new publication contains detailed illustrations of the line of motors and is well suited for distribution to prospective customers. A complete description of the construction features of the line of motors is given in the booklet which contains nineteen pages.

S. R. M. Orum, Inc., Philadelphia, Pa., has announced the manufacture of a double action carboy pump for drawing acids from carboys. The double action pump forces air into the carboy and this air in turn forces the acid up and out of the lead goose neck delivery pipe.



When any kind of a celebration is held in the Northwest by the electrical industry invitations are not limited to the members of the organization sponsoring the affair. Witness here assembled members of the Tacoma Electric Club and their guests who were the guests of the Electric Club of Seattle at a dinner dance given at Alderbrook Manor recently. From the expressions on the faces of the Tacoma residents, it can be assumed that the Puget Sound men know how to entertain and how to be entertained.

Trade Outlook

San Francisco

Despite the fact that the tendency of buyers, retailers and jobbers is to buy for immediate needs, business in San Francisco has been fairly active during the last two weeks. The tendency has placed some additional burden on manufacturers, making them the sole estimators of future demands. The advance in prices has been checked and buyers have been quick to take advantage of any price concessions.

Building costs are still high and it has been noticed that there has been a tendency to tighten-up on the extension of credit for the erection of apartment houses. A slight reduction in the price of pine lumber at the mills occurred recently.

Activity has prevailed in the manufacturing industry. Labor has been receiving good wages and there is a sufficient supply to meet present demands. There is no enforced unemployment.

There are indications that the grain yields will be large, but at present the price is not conducive to immediate selling of the crop. It may be necessary for producers to warehouse a considerable portion of the crop to await a better market. Good prices have been received for the crop of peaches and apricots that have been marketed so far.

According to the San Francisco Chamber of Commerce, real estate sales in the city for the first five months of 1923 totaled \$81,405,903, an increase of \$19,820,832 over the corresponding period of 1922. Bank clearings for the two-week period ended June 14, totaled \$316,500,000. Clearings for the week ended June 14 were lower than those of the previous week by about the sum of \$4,000,000.

Portland

The lumber market is in a somewhat unbalanced condition. Production is continuing at a very high rate, but the demand for the past few weeks shows a slight weakening. Prices have fallen in many grades. There is no indication of slowing up production, the excess over sales being piled for air drying. The condition is in no way alarming, and a recovery of prices is expected in a few weeks.

There has been no important change lately in the labor situation in this district. With the exception of agricultural labor, there is no serious shortage. The industries are employing thousands, particularly the lumber and wood working plants. It is estimated the healthy building program now on in Portland is using about ten thousand workers.

The building rate in Portland is about what it was a year ago, which was the highest ever known in this city. Residence construction this year is expected to surpass all previous records. Public buildings, community and business structures add to the volume, which places this city third on the Pacific Coast in the matter of new construc-

tion. Business buildings under way or projected aggregate \$3,500,000.

The industrial situation in the state is reported to be the best in history. Crop reports are quite satisfactory, and the situation generally is promising.

Denver

A slight slump in building operations during the past fortnight has been noted. This is generally believed to be due to propaganda about high building costs and the advisability of waiting six months, a year, or even longer to consider additional construction. Large buildings and industrial projects have not been affected, while in the case of dwellings, insofar as electrical work is concerned, the prices charged to the public are not as high as those in force two years ago.

The banks indicate a secure financial situation. In the agricultural areas, farmers are being accommodated to a major degree and, with the prospects of good crops, the outlook is more optimistic than in 1922.

Industrial plants linked with building materials are running to capacity. New railroad construction in Montana, Wyoming and New Mexico is making more jobs for workers and business as a whole in those sections is better.

Considering present business conditions, the electrical industry is not prospering to the degree that might be expected. Jobbers, however, report a constant volume of sales. It appears that the contractor-dealers are the ones not receiving the full benefit of the present conditions.

Seattle

General business conditions in Seattle and Puget Sound country continue satisfactory, and a general feeling of optimism prevails for the summer prospects. Unseasonably bad weather during the latter part of May and early June affected most lines of industry, but improvement was immediately noticeable with the advent of sunshine.

While building permit totals are large in the majority of the cities on Puget Sound, and Seattle permits are heavier than they were last month, there is nevertheless a slackening of work on the boards of architects. Certain investors feel that both material and labor prices are too high and are holding off on new work. On the other hand, the demand for new structures of all kinds encourages many to proceed regardless of mounting costs. Permit for the new \$3,500,000 Community Hotel has been issued, and construction will begin as soon as the matter of issuing additional bonds is settled. This construction will require a large number of workers, and will provide employment for certain lines now oversupplied with labor.

Electrical jobbers report stocks of all kinds, with the exception of conduit, in good shape, with replacements easy to obtain. Sales volume has been well maintained, and dealers believe this

condition will exist until late in the fall. Demand for transmission line materials and equipment, from public utility corporations, has been lively this spring and summer. Increasing interest in home-wiring is evidenced in most of the new homes under erection, many of them being completely wired throughout for electrical devices.

Los Angeles

During the first fifteen days of June, the Los Angeles building department issued 2,756 permits, with an estimated valuation of \$7,476,292. For the corresponding period in 1922 the number of permits issued was 2,044, with an estimated valuation of \$6,660,063. The increase has been approximately 12 per cent in valuation and about 40 per cent in the number of permits issued. There will be a slight decrease for the month of June from the month of May, though the total is expected to go over fifteen millions.

Exports and imports passing through the port of Los Angeles in May totaled \$5,119,245 in value, compared with \$2,538,862 in May of 1922, according to official figures recently announced by the collector of customs. This represents an increase of nearly 45 per cent over the preceding year.

Bank clearings for the week ending June 15 amounted to \$138,622,976.72, as compared to the corresponding period of last year, with \$104,523,241.88, which represents an increase of approximately 33 per cent.

Electrical supplies, wire, conduit and wiring devices are in demand and business is excellent for this class of material. The sale of electrical appliances is good, though the continued cool weather has naturally reduced the sale of electric fans.

Salt Lake City

A significant step in the era of industrial development upon which Utah and the intermountain section is entering, is the granting of the permit to the Utah Power & Light Company by the Federal Power Commission for the preliminary engineering work in connection with the Flaming Gorge water power development on the Green River. This development means the bringing in to this section of from \$10,000,000 to \$20,000,000 of new money, to be spent in the work, and the employment of about one thousand men for a period of several years. This is looked upon as the beginning of an extensive program of hydroelectric development within the State of Utah to keep pace with the growing demands of industry for electric power.

The value of new construction in building projects in Salt Lake City, for which permits were issued during the month of May, surpassed that of any previous month in the last two years, and was three times the amount for the same month of last year.

Metal mines are working at full capacity, and there exists a shortage of unskilled labor in this line.

On practically every hand there is much more optimistic sentiment than has existed for some time past, and a feeling that this section is due for the greatest era of industrial development that it has ever known.

Construction News

Buildings (Industrial)

Calif., San Francisco—The Williams Bros. Aircraft Corporation will build a 2-story Class C concrete factory, costing \$20,000, on the south side of 25th Street, between Potrero Avenue and Utah Street.

Calif., San Francisco—A 2-story and basement concrete loft building will be erected by the Pacific Gear and Tool Works, on the south side of Howard Street, between First and Second Streets. The cost is estimated at \$52,000.

Calif., Los Angeles—The Austin Co., 702 Pacific Electric Bldg., is preparing plans and will erect a knitting mill on San Fernando Road, near Glendale, for Wayne Knitting Mills. It will be 4 stories, 90x300 feet, reinforced concrete construction, steel sash, steel rolling doors, elevators, conveyors, etc.; \$225,000.

Calif., Los Angeles—Austin Co., 702 Pacific Electric Bldg., has the contract to erect two new buildings, at Tropic, for the L. A. Basket Co. There will be a steel and concrete iron warehouse, 50x160 ft., and a reinforced concrete boiler house, 50x80 ft.; \$32,000.

Calif., Fresno—San Joaquin Light and Power Corporation has started excavating for a transformer warehouse, to be erected at Orange and California. Reinforced concrete construction, costing approximately \$60,000. Equipment, etc., will cost about \$12,000. A 10-ton traveling crane will be installed. A. Emory Weston, general manager, Fresno.

Calif., Pasadena—J. H. Woodworth & Son, 200 E. Colorado Street, Pasadena, are preparing plans and will erect a \$60,000 1-story brick or concrete factory building on 4th Street, Huemene, for the Seibel Air Spring Corporation. Foundation, 100x200 ft., car-height, cement floors, composition roofing, steel trusses and columns, steel sash.

Calif., Los Angeles—Architect W. Douglas Lee, 400 Sun Drug Building, has completed plans for a 1-story factory building, on Los Angeles Street, near Washington Street, for California Spring Co. Brick, 120x108 ft., composition roofing, pressed brick facing, terra cotta trimming, cement floors, steel sash, metal skylights, wire glass, 4 stores in the front of building.

Calif., San Francisco—The American Can Company is planning the erection of two additional structures adjoining the present factory, located on the south side of 20th, between 3rd and Illinois Streets. They will be 2 and 4-story concrete and brick buildings, to cost approximately \$350,000.

Calif., San Francisco—McLeran Co. is planning the construction of a 4-story and basement warehouse, to cost approximately \$100,000, to be erected on the west side of Second Street, south of Harrison.

Calif., San Francisco—The McLeran Company has applied for permit to construct a 1-story concrete warehouse, on the west side of Folsom Street, between 13th and Erie Streets, for the Crystal Laundry Co. The work will cost approximately \$50,000.

Calif., Los Angeles—The Globe Soap Company will occupy a factory building, to be constructed on the northeast corner of Loma Vista and 48th Streets, at a cost of \$50,000. Work on the building will start at once.

Calif., Oakland—The John Breuner Company is planning the construction of a 3-story concrete warehouse, to occupy the northeast corner of 22nd and Adeline Streets, Oakland. Cost is estimated at \$180,000.

Calif., San Francisco—A concrete warehouse, Class C construction, to cost \$18,000, is to be erected on the south side of Bryant Street, 275 feet west of Fifth Street. The owner is William Gilmour.

Calif., Oroville—Contract has been awarded to Davison & Nicholson, Stockton contractors, by Wyandotte Canneries, Inc., for the construction of the new cannery here to process the olives of the Wyandotte Olive Growers' Association. The contract is for the construction of a vat room, 168x220 ft., and for the construction of a cannery and warehouse room, 130 by 220 ft.

Provision is made in the plans for extending and increasing the floor space, if this is found desirable. Work is to start immediately.

Calif., San Diego—A building permit, asking permission to build a \$60,000 electric repair shop, at 65 Eleventh Street, was issued to the San Diego Consolidated Gas & Electric Company. The building is to be of steel and brick construction, 50x100 ft. in floor space, and with an exterior of Spanish architectural style. Construction will be done under the H. M. Bylesby Engineering and Management Department, with H. H. Watson as superintendent in charge.

Ore., Medford—The Stewart Fruit Company of California is constructing a new fruit packing plant in Medford, which promises to be the largest in southern Oregon and probably in the State. Over \$25,000 will be put in the new plant, and next season the Stewart Fruit Company will add a large pre-cooling and cold storage plant.

Wash., Spokane—The United States Metal Company is planning to erect a 500-ton mill for the Bay Horse mine on Snake River. The plant will be built at a cost estimated at \$125,000, and will be completed by the fall months.

Wash., Seattle—Standard Lumber Company will immediately erect a new sawmill on East Marginal Way, with a daily output of 60,000 to 75,000 feet of lumber.

Wash., Seattle—The Rainier Corporation, capitalized at \$3,000,000, will lease plant of the Seattle Brewing & Malting Company, and convert it into a packing plant, fruit and vegetable cannery, involving an expenditure of between \$250,000 and \$300,000 for new equipment. G. I. C. Barton, of Barton & Company, heads the concern.

Wash., Aberdeen—Grays Harbor Manufacturing Company will immediately rebuild its planing mill destroyed by fire with loss of \$50,000.

Wash., Spokane—Plans are being considered by the Bunker Hill smelter for the erection of a lead fabricating plant in San Francisco to care for the firm's increasing business in California. This announcement was made by Frank M. Smith, smelter director, following a trip to San Francisco.

Ore., Portland—A huge development and building plan, the completion of which will necessitate the expenditure of more than \$5,000,000, became public when it was learned that the Servite Fathers, the Hill Military Academy, John D. Wilcox and F. E. Taylor each had closed separate options for the purchase of parts of the 337-acre tract lying between Prescott Street, the Craig road, and East 82nd Street, which includes Rocky Butte. The total consideration is said to have been \$200,000. The three cornered transaction was originated by John D. Wilcox, realtor, who represented the Union Pacific Railroad, which was the owner of the tract. It is coupled with the announcement of a magnificent \$5,000,000 sanctuary planned by the

Servite Fathers and the construction of a splendid new school for the Hill Military Academy which will cost anywhere from \$100,000 to \$200,000.

Ore., Wallowa—A town of seven or eight hundred people will be built this summer and fall in Bishop's Meadows, 16 miles north of this city. The town has been begun by the Bowman-Hicks Lumber Company and will be their permanent camp for several years. Architect C. B. Miller of La Grande has prepared plans for the town, which include a company store, warehouse, 80-room hotel, amusement hall and over 100 well built dwellings.

Ore., Portland—A huge oil tank with a capacity of 55,000 bbl. is to be erected immediately by the Associated Oil Company as a result of a recent purchase by that concern of four acres of additional water front property immediately south of and adjoining its present Linton plant. Plans for the construction work were announced by R. H. Cook, local manager, who estimated that the construction will cost in the neighborhood of \$75,000. This will include a tank and a large retaining wall, the latter costing about \$15,000.

Buildings (Miscellaneous)

Calif., Santa Ana—Offices—Pacific Telephone & Telegraph Company will start work at once on the new reinforced concrete exchange and administration building, to be erected at 5th and Bush Streets, 40 x 74 ft., 3-story, \$75,000. Approximately \$200,000 will be expended on equipment. J. A. Mathis of Los Angeles has the contract.

Calif., Los Angeles—Pub. Plant—Architects Morgan, Walls & Morgan, 1124 Van Nuys Bldg., are preparing plans for a 2-story and part basement newspaper publishing and store building, to be erected at the northwest corner of Pico and Figueroa Streets, for the Evening Herald. The building will contain 21 stores, the second story and part of the first story and basement will be occupied by the publication offices and printing plant of the Evening Herald. A portion of the building, which will house the pressroom and printing department, will be of Class A reinforced concrete construction; the remainder will be Class C brick construction; stucco and cast stone exterior, Spanish style, plate glass windows, steel beams, composition roofing, metal skylights, steel sash, elevator, cement, wood and reinforced concrete floors, steam heating.

Calif., San Francisco—The erection of a \$2,000,000, 20-floor building, to be located at 140 New Montgomery Street, has been approved by the board of directors of the Pacific Telephone & Telegraph Company. The building now on the site, which was erected immediately after the fire and which is used by the telephone company's accounting department, will be torn down to make way for the new addition to San Francisco's skyline. The new building will be designed to house the general offices of the telephone company, as well as the accounting department, the chief engineer's organization, and the offices of the division superintendents and their staffs. Upwards of 1,500 headquarters employees will have offices in the new structure, which will contain no switchboards or local traffic forces.

Calif., San Francisco—Residence—Mrs. Harold Zellerbach is planning the expenditure of approximately \$25,000 in the erection of a residence, on the north side of Jackson Street, west of Laurel. The building will be a 3-story and basement frame structure.

Calif., Oakland—Offices—A new office building, to cost \$80,000, will be erected on the northwest corner of 19th Street and Broadway. Harvey B. and Ed. C. Lyon are the owners.

Calif., San Francisco—Stores—Completion of the deal whereby A. F. Rousseau, acting for the Marian Realty Company, purchased one-half of the W. B. Wagon holding, on the south side

of Market Street, commencing 75 feet west of Seventh Street, was followed by plans for immediate building operations. The property has a frontage of 75 feet on Market Street, the west half of which was purchased by Rousseau. Permits were requested by both Rousseau and Wagon, for identical concrete buildings of 3 stories, mezzanine and basement, each. The estimated cost of each was placed at \$130,000.

Calif., San Francisco—Apartments—A 5-story and basement concrete building, to contain 25 apartments, is soon to be erected, on the west side of Hyde Street, 100 feet south of Sutter Street. Charles A. Johnson, the owner, has estimated the cost at \$50,000.

Calif., Stockton—City Hall—Contract for the new city hall has been let by the city council, to Howard S. Williams, on his bid of \$398,000.

Calif., San Francisco—Apartments—R. Puckett has applied for permission to construct a 3-story and basement frame building, to contain six apartments, to be located at the southeast corner of Greenwich Street and Van Ness Avenue. Cost estimated at \$35,000.

Calif., San Francisco—Apartments—Plans for a 5-story and basement concrete structure, to contain 29 apartments, are being made by E. V. Lacey. The building will be located on the north side of Geary Street, 160 ft. west of Larkin, and is estimated to cost \$40,000.

Calif., San Francisco—Apartments—Work has been started on a 3-story and basement frame apartment house, for Mrs. W. H. Tuggle, to be located on Russian Hill, on the east side of Larkin Street, south of Chestnut, and has been estimated to cost \$40,000, by Fabre & Hildebrand, the architects in charge. The same architects also have let contracts for a 3-story and basement frame apartment building, to cost \$35,000, which will rise on the north side of Pine Street, east of Hyde. J. Collins is the owner.

Calif., San Francisco—Apartments—Eight apartments will be contained in the 3-story and basement frame structure being planned by George F. Reuter for the lot on the south side of Geary Street, 105 ft. west of Fourteenth Avenue. It will cost \$20,000.

Colo., Pueblo—Lodge—Excavation will begin, July 15, for the new \$200,000 home of Pueblo Council, Knights of Columbus, to be erected at 5th and Court Streets.

Mex., Mexicali—Stores—Chinese-Mexican Commercial Co. is having plans drawn, in San Francisco, for a fireproof building, to be erected in Mexicali, to replace the one destroyed by fire. Cost, \$50,000.

Bridges

Calif., San Francisco—Plans for the construction of a \$1,500,000 bridge across the San Joaquin River, from Sherman Island to Antioch, completing the last link of the Victory Highway between Sacramento and Oakland, have been agreed upon by representatives from Sacramento, Contra Costa, San Francisco and Solano counties. The plans call for the construction of the bridge, which will have a center lift of 175 ft., allowing for passage of deep water vessels. It will permit heavy traffic. These plans will be submitted before Major U. S. Grant III, at a conference between the representatives and engineers of the War Department, for approval.

Wash., Seattle—King County Engineer, T. R. Beeman, is preparing plans for a new bridge across the Stuck River, south of Auburn, to be a steel span, 270 ft. in length over all.

Wash., Olympia—State Highway Commission will receive bids until July 10, for constructing two reinforced concrete bridges over the Hama Hama River, on the Olympic Highway, in Mason County; also for constructing embankment approach to Raymond bridge, on the Ocean Beach Highway, in Raymond, Pacific County. Length of approach 0.3 mile.

Wash., Chehalis—Contract for erecting a 220-ft. steel riveted bridge across the Tilton River, near Morton, let to Monson-Trierweiler Company, Portland, for \$23,292.

Wash., Hoquiam—On July 31, voters of this city will vote on a \$25,000 bond issue to be used in constructing a steel bridge across the Hoquiam River.

Dams

Utah, Salt Lake City—The building of the American Falls dam across Snake River, at a cost of from \$15,000,000 to \$16,000,000, has been assured through the signing by Secretary of the Interior Work, in Washington, D. C., of contracts with the Greater American Falls Irrigation District and with the Idaho Power Company. These contracts pledge the government to proceed with the building of this dam in cooperation with the two irrigation districts, while the power company, under its contract, agrees to surrender to the government its two plants at American Falls and such other property as may have to be taken over incident to the building of the dam. While the dam is under construction, power from these plants will be used at the dam site.

This action by Secretary Work makes it possible for the American Falls district to proceed with the sale of its \$2,700,000 of bonds recently authorized and the Empire district is empowered to sell its \$2,500,000 of bonds, these amounts representing what the land owners of these districts will pay for additional water to be supplied them from the American Falls reservoir. The Government, on its part, is obligated to make a 120,000-acre addition to the Minidoka Project, at an estimated cost of \$100 per acre, and the bulk of the Government's contribution will yet have to be appropriated by Congress. To date, the Government has spent about \$500,000 at American Falls, an additional \$1,700,000 is on hand and can now be expended, and there is no longer any danger that any part of the appropriation will lapse.

Wash., Spokane—Bids will be asked for by the state for two dams required in the construction of the Whitestone irrigation project. One will be at the head of Horse Spring coulee and the other on the Sinlahekin creek, at Blue Lake. The aggregate cost is estimated at \$200,000 to \$250,000.

Highways

Calif., Sacramento—The awarding of two contracts by the State Highway Commission has been announced by Secretary W. F. Mixon. Davison & Nicolsen of Stockton were awarded a contract for building abutments and wing walls across Arroyo Seco creek, near Shellville, Sonoma County, on the basis of a bid for \$13,204.50, and the other contract, for constructing a mile of concrete highway, from Fish Canyon to Azusa, in Los Angeles County, was awarded to W. R. McCray of Los Angeles.

The amount of the bid in each instance is somewhat below the estimate of the highway engineer.

Calif., Sacramento—The State Highway Commission has directed R. M. Morton, chief engineer, to advertise for bids for the seventeen-mile unimproved link on the Merced to El Portal lateral, between Briceburg and El Portal, which will cost approximately \$650,000 and assure an all-year road into the Yosemite Valley. Completion of this section will eliminate the 18 per cent grade on the Chowchilla Mountain road.

Ore., Eugene—The Bureau of Public Roads has let the contract to the Warren Construction Company for the building of the Roosevelt Highway, between Devils Lake and Siletz Bay, in Lincoln County, the contract price being more than \$200,000, according to word received at the office of the Suislaw National Forest here. This will complete the Roosevelt Highway, from Tillamook County to Siletz Bay, and

there is a section of but a few miles to be built to reach Newport.

Ore., Salem—The last gap between Condon and Prairie City is to be completed, the State Highway Commission having awarded to Bauers & Bauers the contract for grading and surfacing the John Day Highway, in Grant County. The improvement covers a distance of 14 miles and the cost will total \$157,000. Grant County is to cooperate with the highway department to the extent of \$40,000.

Wash., Chehalis—George Banderet, Bryn Mawr, on a bid of \$39,299, received contract for grading, draining and clearing the right of way on the National Park Highway, two miles east of Salkum.

Wash., Olympia—State Highway Commission will receive bids, until July 10, for the following state road work: Clearing, grading and draining and surfacing with crushed gravel about 6.9 miles of the Chelan-Okanogan Highway, between Riverside and Omak, in Okanogan County; surfacing with crushed rock about 6.3 miles of Inland Empire Highway, Pomona to Selah in Yakima County.

Wash., Seattle—King County Engineer, T. R. Beeman, has completed plans and submitted them to the State Highway Commission for approval, covering the following road work in King County, on which bids are to be called for this Summer: Paving three miles of Maple Valley-Renton Road, with 20-ft. concrete surface; paving of East 65th Street, for a distance of one mile with 20-ft. concrete roadway; laying of one-half mile 16-ft. paving to Yarrow Point.

Wash., Everett—Snohomish County Commissioners have awarded to E. J. Templeton, Everett, on a bid of \$64,876, contract for paving three miles of the Mukilteo-Everett Highway. Work involves 27,000 cu. yd. of concrete paving, 10,000 cu. yd. of grading.

Wash., Bellingham—Whatcom County Commissioners will open bids shortly for paving of 2¾ miles of Sedro-Wooley-Wickersham Highway, at a cost of \$100,000. Road will be 16 ft. wide, with 6-in. concrete at the edges and 7½-in. in the center, involving 27,000 sq. yd. of concrete.

Wash., Seattle—Board of Public Works will call for bids, on September 1, for grading and paving three miles of 16th Avenue S. W., south of Youngstown. City Engineer J. D. Blackwell places estimated cost at \$100,000.

Wash., Olympia—Following highway contracts were recently awarded by the State Highway Commission: Mason County, Navy Yard Highway, from Union to Holyoke Creek, clearing, grubbing, grading and graveling for 8.28 miles, let to John Ottosen Company, Seattle, for \$77,900.40; King County, Sunset Highway, Falls City to Snoqualmie, 2 miles, clearing, grubbing, grading and graveling, to Hans Pederson Company, Seattle, for \$53,857.25; Grays Harbor County, Olympic Highway, closing five small gaps in cement paving, totaling .54 mile, to Grays Harbor Construction Company, Aberdeen, for \$28,364.60; Pacific County, Ocean Beach Highway, Paliz to Nasel, 15.94 miles, graveling, to K. L. Goulter & Co., Ilwaco, for \$56,577.20; Pacific County, Ocean Beach Highway, Nasel to Sand Ridge Road, 10.86 miles, graveling, to K. L. Goulter & Co., Ilwaco, for \$28,962.75; Pacific County, Ocean Beach Highway, clearing, grading and surfacing with crushed rock, 5.36 miles, from Nasel to Johnson's Landing, to Pentello & Pelemon, Nasel, for \$54,069, work involving 6,500 cu. yd. excavation.

Irrigation

Ariz., Phoenix—Queen Creek Irrigation District has asked for the approval of the State Certification Board of a \$300,000 issue of bonds. The Queen Creek Irrigation District is located east of Chandler and has applied to the board for the approval and certification of a bond issue of \$300,000, which the district proposes

to issue for the improvement of the district. The application states that \$255,000 is to be spent in the improvement, the balance of the issue to be used as a reserve or contingent fund. The district proposes to erect 22 miles of power line from the district to connect with the power lines of the Salt River Valley Water Users Association, near Chandler, at a cost of approximately \$1,000 a mile. It also proposes to construct 14 miles of pipe line, 15-in. pipe, and to sink 10 new wells and improve 5 old wells, in addition to buying pumps and other machinery to be used in connection with bringing the water to the surface and putting it on the lands.

Ore., Bend—Completion of the \$100,000 storage reservoir of the Tumalo Project, at Crescent Lake, is reported by Project Engineer C. M. Redfield. This feature of the Tumalo development, the last to be completed, makes possible the impounding of surplus winter flow at the headwaters of the Deschutes, which can be released during the irrigation season, developing additional water rights in the Deschutes. The district, as a result of its filings, can use this water at Bend to augment the flow of Tumalo Creek. The work at the lakeside consists of a log crib dam, filled with rock and double sheeted with two and three-inch plank. It is provided with an outlet and inlet canal, and two 5x6-foot cast iron gates, designed to pass 400 second-feet of water. The spillway length is 100 feet.

Wash., Yakima—Reclamation Service has awarded to the Pacific Coast Steel Company, Seattle, contract for furnishing square twisted or square-deformed bars reinforcing steel for use on the Yakima storage contract, on their bid of \$28,848.75.

Wash., Prosser—\$32,000,000 bond issue of the Horse Heaven Irrigation Project is to be readvertised, according to a resolution passed by the Horse Heaven Irrigation District recently, following the liquidation of the Morris Bros. Bonding Company of Portland.

Wash., Okanogan—With the surveys completed and the bond issue under contract, one of the concluding steps in the preliminaries in the development of a \$2,000,000 irrigation project in the Methow Valley country, near Okanogan, was taken recently, when the Methow-Okanogan Reclamation District made application to State Supervisor of Hydraulics for right of appropriation of the waters of the Methow River.

Power Projects

Wash., Everett—The Rayside Electric Corporation, here, has been organized for \$150,000, by C. R. Landweer, Harry W. Musiel and Merle Johnson, to buy, sell, lease, generate and produce electric power, water power, or hydro-electric power.

Wash., Olympia—Application of the Puget Sound Light & Power Company, for franchise for electric power line between Tumwater, near Olympia, and Tenino, was granted by Thurston County Commissioners, with the provision that 2 per cent tax on gross revenues be paid to the county. The line is for the special purpose of connecting the Stone-Webster power line into Olympia and Tumwater, from the Snoqualmie power plant, with the North Coast Power Company, now owned by Stone & Webster, which operates from the Columbia River northward through Chehalis and Cennalia to Tenino, thus tying in the system to facilitate distribution of power, and for emergency safeguard.

Railways

Calif., San Francisco—The finance committee of the Board of Supervisors has recommended the appropriation of \$150,000 for the construction of a second story on the existing story of the Seventeenth Street municipal railway car barn. The purchase of twenty extra cars by the city recently makes necessary the additional

housing facilities. An appropriation of \$12,000 for special track work was also approved by the committee.

Calif., Redding—Bids on construction of a new passenger station for Redding will be called for in about two weeks, according to A. W. Fitzgerald, superintendent of the Shasta Division of the Southern Pacific Railroad. Plans and specifications are being worked out in detail in the San Francisco office of the company, and bids will be called as soon as plans are completed.

Street Lighting

Calif., Pasadena—W. A. McNally Co., Pasadena, was awarded the contract, at \$10,203, for constructing a lighting system on S. Hudson Street, from Colorado Street to Oakwood Drive.

Calif., Los Angeles—H. H. Walker, 1800 W. 12th Street, submitted low bid to Board of Public Works, at \$22,695, for constructing ornamental lighting system in Western Avenue, between Hollywood Blvd. and 50 ft. north of Lexington Avenue.

Calif., Los Angeles—Los Angeles Municipal Art Commission approved plans for: Ornamental street lighting system for Wilshire Blvd., between Westlake Park and Western; J. W. Cosling, of General Electric Co., designer; Cost, \$64,000; ornamental street lighting system for Jefferson Street, between Main Street and Vermont Avenue, Marbelite Corporation, designer; 103 standards; cost, \$37,000; ornamental street lighting system for Los Angeles Street, between Seventh and Ninth streets, J. W. Cosling, of General Electric Co., designer; cost, \$12,000.

Utah, Nephi—The city of Nephi is soon to have a new Whiteway lighting system. The equipment has been ordered, and it is expected that the installation will be completed by the end of August. There will be 20 ornamental iron poles, each unit being 200 cp., to replace the old 100-cp. lights. The standards will be erected on the two Main Street business blocks. The Western Electric Company is supplying the equipment.

Utah, Vernal—The installation of an electric lighting system for the town of White rocks is being considered. William Donner, superintendent of the Fort Hall Indian agency, will be in charge of the work.

Wyo., Rawlins—The city council has accepted the proposition of the Westinghouse Elec. & Mfg. Co. to install a modern ornamental street lighting system throughout the city.

Streets and Sewers

Calif., Redding—The Warren Construction Co., of Oakland, has been awarded contract by the city trustees for \$90,000 worth of street paving, mostly on the west side of the railroad. The work includes sidewalks, gutters, curbs, culverts, pipe, grates and covers. Construction work will start at an early date.

Calif., Redding—The city trustees have authorized the advertising for bids for paving Market Street north from Trinity Street to the State highway bridge across the Sacramento River—bids to be opened July 2. Estimated cost is \$25,000.

Calif., Los Angeles—Until 10 a. m., July 9, bids will be received by the Board of Public Works for the construction of four sections of the sewer system to connect the Sawtelle or West Los Angeles district with the main city outfall. This work will be done under the \$12,000,000 bond issue, of which bonds to the amount of \$2,000,000 have been sold to Blair & Co., funds from which will be used in the various preliminary parts of the projected sewer system for greater Los Angeles. The four sections are: Nos. 11, 12, 13, 14. Section 11 involves 3,322 ft., 6 ft. 3 in., and 1,808 ft., 7 ft. 6 in. sewer; Section 12, 2,995 ft., 5 ft. 3 in., and 2,384 ft., 6 ft. 3 in. sewer, and 8.25 ft. special structures. Section 13, 3,190 ft., 4

ft., 9 in., and 3,209 ft., 5 ft. 3 in., and 3,402 ft., 6 ft. 3 in. sewer. Section 14, 8,906 ft., 6 ft. 3 in. sewer, and 825 ft. special structures. Bids will be taken on three types, viz: Brick-concrete construction; Ferguson segmental block, and reinforced concrete sewer with vitrified lining. Bids on construction Section 10 are not called for at this time, owing to engineering work not being completed.

Calif., Los Angeles—Ducey and Breitenstein, 151 S. Hill Avenue, Pasadena, were awarded contract by County Supervisors, at \$21,600, for grading and oiling Allen and Crescent Drives, and constructing curb and gutter, under R. D. I. No. 216.

Calif., Anaheim—Until 8 p. m., July 12, bids will be received by City Trustees for constructing joint outfall sewer. Bids are to be received separately on each of the three sections. Section 2 will consist of 12,278.36 ft. of 27-in. pipe and 17,300 ft. of 30-in. pipe, with manholes and about 1,000 ft. of 24-in. pipe and 13,201.37 ft. of 27-in. pipe, with manholes. Section 4 will consist of 9,249.36 ft. of 24-in. pipe, with manholes. Alternate bids are to be received for segment blk. vit. and concrete pipe. This is the joint outfall sewer work in which the cities of Anaheim, Fullerton and Orange are interested, and will connect up with section of the joint outfall sewer, which is now under construction.

Calif., Marysville—The city council has adopted a resolution forming a new street paving district, covering 28 blocks in the residential district. Mayor Richards states that within two years every street in the city will be paved.

Colo., Denver—Monahan & Cummings have been awarded contract for the laying out of the South Denver Improvement District, No. 16, which lies east and north of the University of Denver grounds. The bid was \$82,999.60.

Wash., Everett—Pacific Avenue will be paved from Whetmore to Broadway, at a cost of \$18,000, providing two 18-ft. strips of 6-in. concrete at the sides of the street, with a 24-ft. parking strip in the center.

Wash., Chehalis—Contract to pave street awarded to Albers Bros. Construction Co., here, for \$19,117.

Wash., Seattle—No bids received on the Willson Avenue Project, for which bids were advertised recently. The paving job is estimated to cost \$221,325, and is to be readvertised; Contract for paving Latona Avenue, et. al., was let to Fiorito Bros., Seattle, for \$83,504; contract for paving 3rd Avenue, et. al., awarded to Olympic Construction Company, Seattle, on a bid of \$92,645 for 6-in. concrete.

Wash., Long Beach—Soleim & Gustafson, Astoria, Ore., on a bid of \$33,504, received the contract for street work here.

Wash., South Bend—This city plans laying of 13,240 sq. yd. of concrete paving, on which bids will be called July 15. H. A. Gibbs, City Engineer, reports estimated cost to be \$58,516.

Waterworks

Calif., Upland—City Engineer George S. Hinkley has recommended that council call at once an election to vote on a \$225,000 bond issue for a municipal water system. The present private system would be purchased and enlarged, while additional water-bearing land would be secured.

Utah, Midvale—At a special election held at Midvale, a bond issue of \$100,000 was carried, to provide an adequate water supply for the city. The water will be brought from Little Cottonwood Creek.

Wash., Tacoma—Residents of Dash Point, Northeast Tacoma, Hyada Park, Todd Haven, voted to construct a new water system, costing \$168,000. A bond issue will be sold for this amount, but only \$75,000 will be spent the first year. Plans provide for acquiring three springs with flow of 127,000 gallons daily.

Journal of Electricity

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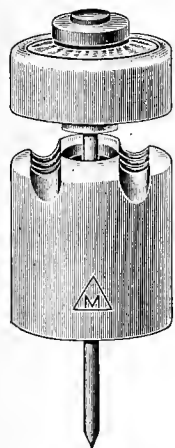


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Journal of Electricity

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VOLUME 51

SAN FRANCISCO, JULY 15, 1923

NUMBER 2

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Contractor-Dealer Number

August 1

THE NEXT issue of the Journal of Electricity will emphasize particularly the contracting and the merchandising phases of the electrical industry in the West.

The editorial articles to be featured in this number will include

- "Resume of the Credit Situation Existing Between Contractor-Dealer and the Jobber," containing recommendations as to how it may be improved—by Rey E. Chatfield, secretary-manager, Electrical Service League of British Columbia.
- "Application of Principles of Better Merchandising for Increasing Sales"—by Arthur L. Spring, merchandising manager of Los Angeles office of the General Electric Company and formerly field representative of California Cooperative Campaign. Mr. Spring is an authority on merchandising problems.
- "The Accounting Problems of the Contractor-Dealer"—by F. V. Mitchell, an accountant specializing on contractor-dealer problems.
- "What the Finance Company Can Do for the Contractor-Dealer"—by Wilbur Fritz, president of the Republic Finance Company of San Francisco. Mr. Fritz has developed a series of very interesting facts which every electrical dealer should know.
- "Electrical Construction"—by Earl Browne, retiring president of California State Association of Electrical Contractors and Dealers and a member of the firm, Browne and Langlais Electrical Construction Company, electrical contractors of San Francisco.
- "Who Shall Write the Electrical Specifications"—by T. L. Nudd, formerly electrical engineer with the F. E. Newbery Company of Los Angeles, at present consulting electrical engineer for the Associated Architects of Los Angeles. This article will deal with the various functions of each branch of the electrical industry in connection with construction jobs of different classes.

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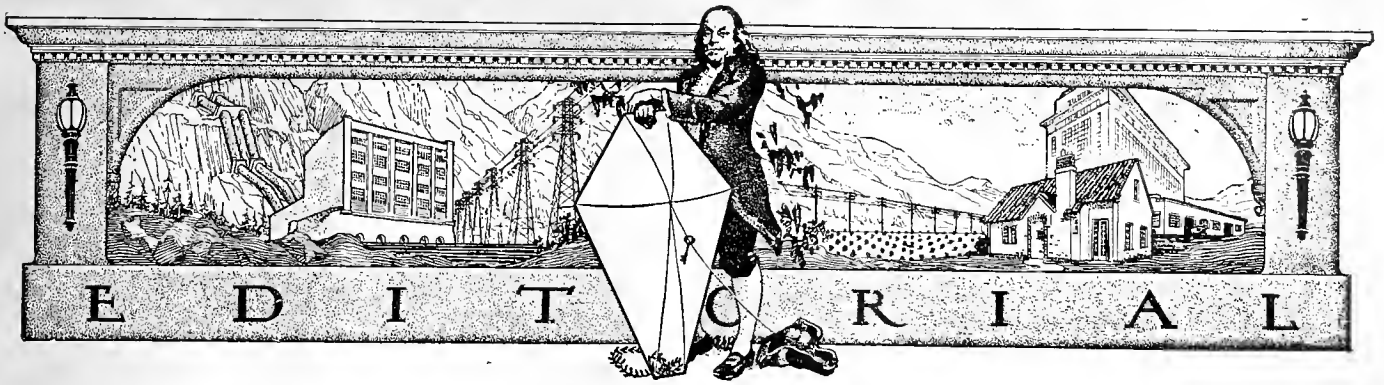
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The Danger in Superpower

PUBLIC attention is at present attracted and popular imagination fired by the word "superpower." Long before the United States Geological survey conducted in the region between Washington and Boston, some two years ago, engineers have discussed the possibilities and advantages of regional interconnected systems of electrical energy. No one can deny that economical power production must be the basis for future industrial expansion, and a requisite for the advance of our civilization, and that electricity will be the method by which this power is furnished.

BEFORE a beginning can be made, publicity and public sentiment must favor such stupendous developments as will undoubtedly be needed to conserve and utilize our power resources, but there is a grave danger in some of the publicity which has appeared in connection with "superpower." Electricity is associated with magic in the popular mind and many articles appearing in the popular magazines tend to stimulate this attitude. Writers with little evident knowledge of the engineering difficulties, political procedures, capital requirements or economic aspects of the generation and transmission of electricity draw liberally upon their imaginations to paint misleading word pictures of an immediate era when electricity will be practically free and universally available.

SMALL of vision indeed must be the man in the electrical industry who does not realize the part electricity is destined to play in the emancipation of mankind. But there is no one more cognizant of the laborious task in achieving this "millenium." Many years will pass before a nation-wide interconnected system can be possible or practicable. But it is none the less certain.

THE danger lies in arousing an anticipation of realizing the benefits too soon. Demagogues have been quick to appreciate the opportunity to play upon the popular fancy by the promise of government-developed "cheap power." While it was necessary to secure financial aid from the government for the original superpower survey this need no longer be done. The electric utilities are able, and stand ready to effect the desired end at an earlier time than would result from any governmental participation.

THE electrical industry of the nation should follow the example of the great utilities of the Pacific Coast who have created, without government participation, a net of transmission lines from Canada to Mexico. If the industry is to frustrate the movements for the state and national development which have arisen frequently of late and checkmate their further spread, actual installations and work should be undertaken without delay.

Electricity Has Made the Small Ice Plant Commercially Possible

ELECTRICITY has revolutionized the business of artificial ice making in the past few years. Not only has it been demonstrated to be cheaper than fuel-driven motive power, but labor and maintenance costs are much lower. Perhaps the most radical change that has been brought about, as is discussed by Mr. Lincoln elsewhere in this issue, is the development of the small unit, the plant of from twenty to thirty tons capacity.

Original ice plants were steam driven and used practically all of the exhaust steam in the manufacture of "distilled water ice." As long as it was thought necessary to use distilled water the steam engine had a great advantage over the electric motor in the ice-making field. But of late years it has been discovered that raw water can be used in the manufacture of ice. With the discovery of "raw water ice" the steam plant gradually lost this advantage and is gradually being driven from the field by the motor-driven compressor. The development about this time of the low-speed synchronous motor for direct connection to reciprocating compressors has probably been one of the most important factors in hastening the electrification of ice plants.

Ice plants today furnish an increasingly important part of most of central station load, and, as Mr. Lincoln points out, "The ice factory offers an opportunity for engineering study for the purpose of improving methods and conditions prevailing in this large and well established industry that is demonstrating its desire to keep up with the demand of the times both as to installed capacity and the use of the most improved equipment and methods."

Building Store Lighting Business Will Aid All Branches of the Industry

PROGRESSIVE merchants in the larger centers of population have long realized the value of intensive window and store lighting in making the cash register ring more often and in larger figures. Light plays a tremendous part in making people stop and look at window displays, but of the two million stores in this country it has been estimated that but one in thirty-five has an intensity of fifteen foot-candles in their window.

Much interest has been aroused nationally in the opportunities of the electrical industry in developing store lighting by a monograph, "Building Store Lighting Business," recently published by the Society for Electrical Development in cooperation with the Joint Society for Business Development. This monograph shows from reports of the Store Lighting Division, National Sales Bureau, Commercial National Section N.E.L.A., what better store lighting means to the central station, and likewise to every branch of the electrical industry. It also tells what some companies and local cooperative organizations have done and suggests what others can do to build business. In addition the monograph contains suggestions for the conduct of a better store lighting activity and details material that has been specially prepared to assist in obtaining results.

Every merchant is desirous of increasing his business and will make use of those things, which, with a reasonable outlay, will help him to achieve his object. The California Electrical Cooperative Campaign is conducting an activity, in the form of a portable window, the success of which has shown that the merchant is all too ready to take advantage of the opportunities of better lighting. He is quick to sense the great psychological value of light in creating prestige for his store, and its practical value of selling the goods once the prospect has stopped to examine them.

On another page in this issue is described a lighting installation in a department store in a California city. The proprietor of the "Wonder," a department store in Fresno, a city of around 60,000 population, has installed equipment which rivals the best in metropolitan centers. The justification for his investment is already apparent in increased sales. This installation has attracted wide attention and will well repay a personal examination.

Electrical merchants and contractors will be well repaid for their efforts to increase their store lighting business. The fixture man, the jobber and lighting equipment manufacturer have a similar opportunity—the time for action is the immediate present.

Public Ownership Proving a Failure

MUNICIPAL ownership of public utilities is fast running its course. There are a few new experiments being made, but there is a growing list of failures and woeful cases of waste of taxpayers' money on stubborn attempts to make communities support politically-ridden properties. Soon the deceived people will be begging private enterprises to take them off their hands, as the Communists of Germany now are trying to unload many of their undertakings upon private corporations and others on private managements, says the Cincinnati Enquirer.

The United States Census Bureau and the McGraw Central Station Directory each supply information on this phase of municipal ownership. Recent statistics bear on light plants. There has been a decided tendency in recent years for municipalities to turn over the manufacture of power to private companies and hang on to the more easily manipulated distributing work. In 1912, less than nine per cent of the municipal plants in the United States purchased their power from private producers. In 1917, the proportion had risen to 23.3 per cent, and in 1921, to 26 per cent. Now all the municipally-owned and operated plants produce only four per cent of the electrically generated power in the United States. Of the population, 93.8 per cent is served by private corporations, and 6.2 per cent by municipal plants.

Service costs provide another striking contrast and show that politics in the operation of utilities is expensive. The Census Bureau reports that in 1921 the average tax rate of cities having municipal plants was \$19.31. The average rate in cities supplied from non-municipal plants was \$15.50. This was partly because where municipal plants are ex-

empted from taxation, so that their political managers can have more leeway, the rates on other property are proportionately higher. Also, because the taxes levied on private plants help to reduce the taxes on other property and to lower the average.

It is not surprising, therefore, that there should be a tiring of the public with municipal ownership and operation of utilities. A costly lesson has been learned by many communities where the experiment has been tried. Other also will learn. And yet there will be communities to rush blindly into the clutch of municipal ownership in spite of all experience of others.

Removal of Director of Reclamation Service Objected to by Engineers

THE peremptory ousting of Arthur P. Davis as director of the United States Reclamation Service has caused something of a furor in engineering circles during the past two weeks. The Federated American Engineering Societies have raised formal and vigorous objection to the displacement of Director Davis, and the appointing in his stead a man who is apparently not technically trained and fitted to direct an important technical service of the government.

This procedure is looked upon with grave concern by the engineers and technical men of the United States, because such summary action as discharging an eminently successful employee after 35 years of service, without a hearing or adequate explanation, and with a request to hand in his resignation to take effect within two weeks, will undermine the morale of all the technical agencies of the government and may lead the most competent men to more readily accept engagements with commercial and industrial agencies, thus interfering with the efficient operation of the technical bureaus of the government.

Because of the far-reaching results that might ensue and because of the seriousness of the situation, the organized engineers and technical men of the United States are preparing to make a thorough search into the considerations that led to the action taken in regard to the Reclamation Service. The American Society of Civil Engineers has appointed a special committee to investigate the matter.

The evident interest and concern among engineers and technical men regarding this situation, as well as their views, may be gleaned from the strong editorials that have and are appearing in the technical publications regarding it.

Under the heading, "A Disheartening Dismissal," Engineering News-Record said, in part, as follows:

"No move ever made has been more destructive of the morale of the engineer in the federal service than the peremptory ousting of Arthur P. Davis as director of the United States Reclamation Service.

* * * * What is in the mind of the Secretary of the Interior in this dismissal it is not permitted us to know. He takes refuge in the sole statement that he prefers to have reclamation work in charge of a business man rather than an engineer, but in order

to avoid the necessity of showing wherein the engineering control has been unsatisfactory he abolishes the office of director and substitutes a new one of commissioner, thus depriving the automatically removed director of a hearing on his dismissal. And to succeed this engineer, who has grown up in the service, one of the most competent men in both the science and business of reclamation in the world, the secretary—a doctor of medicine, whose life work has been the conduct of an asylum for the mentally deficient—appoints a not too successful country banker who has been a governor of Idaho. Is there any reason why the charge should not lie that the administration politicians want to have the leverage of the Reclamation Fund to use where it will do the most good?"

The work of the Reclamation Service is essentially engineering and technical. There are business aspects, to be true, but so far as is known there has been no criticism of the business direction of the service, other than perhaps by certain interests in the West who have endeavored to secure a reduction in or have endeavored to repudiate payments for reclaimed lands purchased.

Should this demand prevail, the fundamental principle of the enabling act will be displaced and the revolving fund for the continuation of the work will be dissipated, so that other needed projects cannot be carried out unless there be additional drains upon the Treasury of the United States. Furthermore, should such an eventuality ensue public confidence in the integrity of the direction of such work would be so shaken as to make it difficult to secure appropriations from Congress to extend the work of reclaiming the arid lands of the West.

In the main, the support for such has come from the West, but should there be a question as to the wisdom with which the projects are selected and executed then it is entirely probable that the West would not receive support from other sections of the country. Therefore, not only is the morale of the technical service at issue, but also the larger thing, perhaps reclamation itself.

It is these considerations that are causing organized engineers and technical men to make a thorough study of the situation. Undoubtedly, pronouncements will be forthcoming as the result of such study.

"The average citizen has become so accustomed to the services the utilities render that now he merely takes them for granted, and the gravest mistake that has been made by our public service executives has been their long submission to this state of public indifference. Many of the woes of the public service corporations today may be attributed to the folly of their officers in assuming that their service was only to be offered on a come-and-get-it basis instead of being merchandised. The belief of the utility manager that his enterprise is a business apart, and that the proved and accepted principles of every-day commercial practice cannot be successfully applied to it, is responsible for many of the legislative restrictions and current beliefs that now hamper utility operations."—Floyd W. Parsons.

CURRENT COMMENT



California still leads all states in the Union in the production of hydroelectric energy. This fact is shown in the annual report of the division of power resources of the Department of the Interior, which has just been issued. The figures show that California produced 3,776,998,000 kw-hr. of hydroelectric power in 1922, that amount being 22 per cent of the hydroelectric energy produced in the country that year.

California ranked second to New York in hydroelectric production in 1920, but moved up to first place in 1921, and has retained her rank for 1922.

California is the only state that uses no coal for the generation of electricity. It does use more oil for this purpose than any other state, although its oil consumption in this connection is decreasing, the figure for 1923 being 2,700,000 barrels, or considerably less than half the number of barrels consumed in 1920.

Although it has only 3.3 per cent of the total population of the United States, California produced 9.2 per cent of the total amount of electricity generated in the country in 1922.

Arizona's reasons for her seemingly obstinate stand with reference to the Colorado River pact were ably explained in a letter from one high in the affairs of that state which was read by Governor James G. Scrugham of Nevada before the Western Development Conference, held in conjunction with the recent convention of the Pacific Coast Electrical Association, in San Francisco. To quote from the letter:

"There is no desire in Arizona on the part of anyone to delay the development of the Colorado River. Our mining industries need power. Yuma needs flood control and several of the prospective agricultural valleys need power for pumping. Consequently, we are in need of early development. The Federal Government owns too much of our territory. Here in our state they have reserved mineral rights and nearly all of our timber, all of our coal and water power sites, and have kept up the fiction that the Colorado River is a navigable stream. Coconino County in this state is the second largest county in the United States and the government owns 90 per cent of it. It is going to be necessary, if we are to have a state down here, instead of a number of

boroughs for different cities throughout the country and different corporations to exploit, that the resources which have been put here by Nature, capable of sustaining the population, be used to secure those advantages.

In the lower basin, Arizona occupies relatively the same position as does Colorado in the upper. California and Mexico will develop much more rapidly than this state, and unless an apportionment of the benefits of the river is made in the lower basin, Arizona is going to wake up and find that its greatest resource has been appropriated by California and Mexico.

"There are two questions involved in the matter: irrigation and power. There is a theory in Arizona, which will probably either be sustained or proved impracticable within the next few months, that two and one-half millions of acres of land can be irrigated from the water in the river and that if this is true there will be no water for Mexican land. If Mexico, which will inevitably develop sooner than Arizona can, puts the water to beneficial use, our opportunity will be lost."

The objection which is of greatest importance to the electrical industry here in the West is contained in the next paragraph of the letter, which states:

"Then the power question: We believe that if California can charge us for oil and New Mexico for the coal produced within her borders, Arizona can charge California for power developed within our borders. We are anxious that our rights to do so be established before development is undertaken. The matter of the location of these damsites is of considerable importance to this state. It is generally agreed that whoever first develops power and puts in a distributing system will inevitably get the monopoly. There is a strong sentiment in Arizona for states' rights, and the terms which were exacted from this state when she was admitted to statehood, which deprived her of the benefits of the great natural resources within her borders, impels many of our citizens to undertake to get for the state all that is possible from the development of the river.

"There is a strong sentiment here greatly antagonistic toward permitting Los Angeles and southern California to obtain the benefits that are naturally attached to those who put in the first power installation. There is also a very definite sentiment that power works on the river should be owned by the State of Arizona, that is, those that are wholly

within the state, and that the advantages to be obtained from them go to the state."

Now, while Arizona seems to have effectively blocked action on the Colorado River treaty for the time being, at least, the Federal Power Commission has inserted the thin edge of a wedge which is expected to lead to action on some of the Colorado River projects. By granting the Utah Power & Light Company a preliminary permit for its Flaming Gorge development, the Commission has scouted its resolve to delay all action on these applications until the pact has been ratified. The belief is general that the Commission will award the Girard license for the Diamond Creek development on the river not later than this fall. It is also believed that the upper states can no longer insist that the Arizona project be held up when they have urged the granting of the Flaming Gorge permit. Needless to say, the entire situation is one in which future developments will be watched with interest.

For many reasons interest in radio is likely to be maintained this summer to a far greater extent than last year, according to the radio experts of the Bureau of Standards. The maintenance of this interest and of good radio business during the summer depends very largely on the broadcasters and radio dealers.

Interest in Radio Being Maintained

Two elements of radio receiving sets which have been perfected during the last year or two have gone far to help in making it convenient and satisfactory to use radio receiving sets outdoors. The first of these is the dry battery tube, that is, electron-tube detectors and amplifiers which require only a small dry battery rather than a heavy storage battery to light the filaments. The second improvement is the development of more satisfactory loud speakers which furnish a considerable volume of sound without undesirable distortion. Thus it is possible now with small portable receiving sets, which can be purchased, or which can be fairly easily assembled, to receive satisfactory radio broadcasting while out camping or boating, or making automobile tours. It is a noteworthy fact that exploring parties now take radio receiving sets with them for the dual purpose of furnishing amusement during the evening hours at camp and for receiving time signals with which to check their chronometers.

While the increase in the number of broadcasting stations in operation is an important factor in the radio situation this year, a still more valuable feature from the viewpoint of the listener is a very notable improvement in the quality of programs and other features of operation of broadcasting stations. There are now about thirty Class B broadcasting stations operating on individually-assigned frequencies between 1,000 and 550 kilocycles (300 and 545 meters). These stations furnish programs of high quality and employ transmitting sets of 500 to 1,000 watts power in order to secure the privilege of frequency assignment in this band. The large number of Class A broadcasting stations are also

distributed over a range of frequencies from 1,350 to 1,050 kilocycles (222 to 286 meters). A number of these stations, as well as some of the Class C stations operating on 833 kilocycles (360 meters), have well designed transmitting sets and carefully selected programs. The assignment of broadcasting stations to frequencies differing by at least 10 kilocycles, in accordance with the recommendations of the Second National Radio Conference, has resulted in a decrease in interference and an improvement in the quality of broadcast service which is obtainable by the average listener.

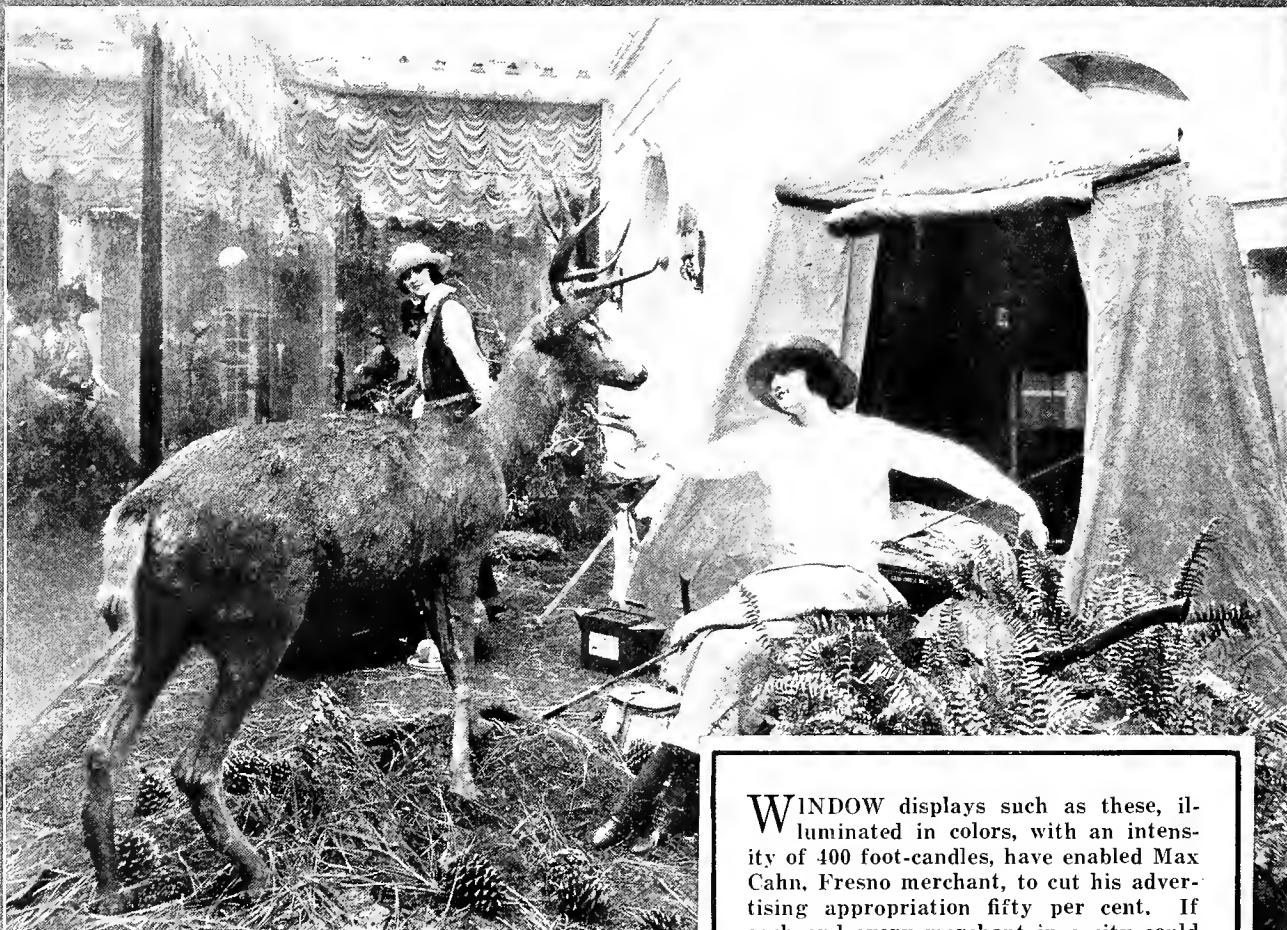
The substantial increase in the use of electric power for manufacturing purposes in northern California during the past few months affords a logical basis for anticipating a future expansion of business at a pace surpassing even the unusual growth of the past few years, according to a statement which has been issued by A. F. Hockenbeamer, vice-president and treasurer of the Pacific Gas & Electric Company. In his statement, Mr. Hockenbeamer says:

Industrial Use of Electricity Is Increasing

"The Pacific Coast, favored by climate, by a variety of raw materials and an abundance of motive power, is steadily winning recognition as a most promising field for industrial activity. Established industries are enlarging their facilities and new factories are being started almost daily, and in practically every branch of this quickening of industrial life in the company's field of operations electricity plays an important part. Indicative of the constant broadening of the field for this company's service, it may be noted that in the month of May 5,252,703 kw-hr. of electricity were sold to the manufacturing industry in excess of the sales in the same month last year, an increase of 29.43 per cent, and undoubtedly one of the biggest gains in sales to this class of business ever experienced by the company. A kilowatt-hour of electricity is equivalent to the energy expended in a day by an able-bodied man doing the hardest kind of physical work, so that in the month of May alone this additional amount of energy sold by the company for manufacturing purposes is equivalent to over 5,250,000 men-days of labor.

"Sales of electricity for miscellaneous power, heating and cooking also showed the very substantial increase during May of 2,268,901 kw-hr., or 27.05 per cent, a result largely of the active campaign for the greater use of electric appliances which has been carried on by the company's enlarged sales organization. In the five months that ended May 31, 1923, total sales of electricity to all classes of consumers increased 48,609,286 kw-hr., or 12.05 per cent.

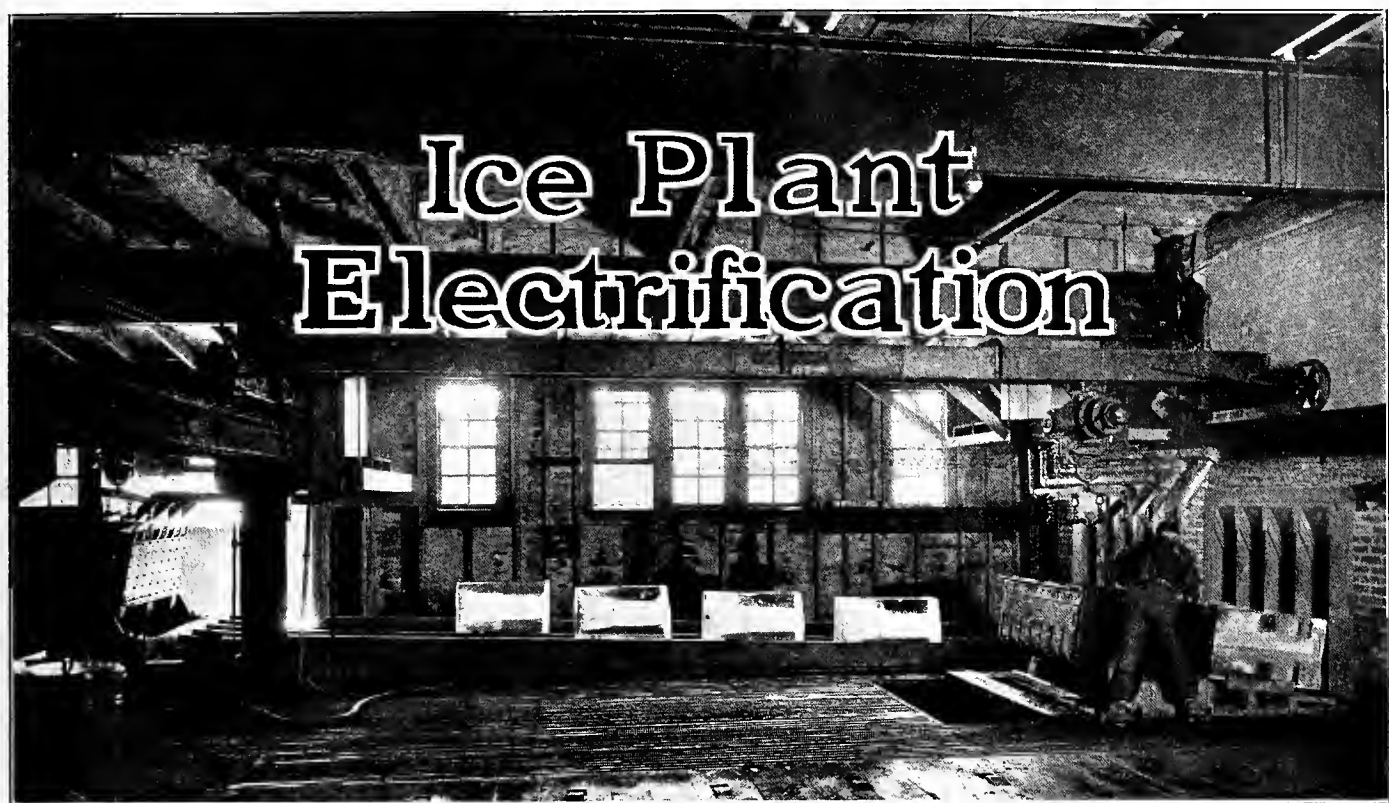
"The number of customers connected to the company's lines on May 31, 1923, was 664,011, an increase during the year of 53,944. In the five months ended May 31, 1923, the net addition of new consumers was 18,747, compared with 11,098 in the first five months of 1922."



WINDOW displays such as these, illuminated in colors, with an intensity of 400 foot-candles, have enabled Max Cahn, Fresno merchant, to cut his advertising appropriation fifty per cent. If each and every merchant in a city could be convinced that light is an invaluable silent salesman, the profit to central station, fixture manufacturer, lamp manufacturer and contractor-dealer would run into thousands of dollars annually. Better store lighting is an untouched treasure chest of neglected opportunities for every branch of the electrical industry. It is a field for immediate cultivation.



Ice Plant Electrification



DURING the past year a number of notable hydroelectric generating stations have been put in service in California, and recently additional installations have been announced, made necessary by the large increase in industrial requirements. Not only does this bear witness that the manufacturers of California believe in the economy and reliability of power company service, but it also induces confidence by demonstrating the resources behind the meter.

In all sections of the state new factories are being built to supply the requirements of a rapidly increasing population. Nothing shows this more strikingly than the number of ice plants built and building for the present season's business. A survey of the state shows new plants in Oceanside, Long Beach, Wilmington, Los Angeles, Monrovia, Alhambra, Glendale, Taft, Dinuba, Turlock, Newman, Santa Rosa, Stockton and San Rafael, with additions made to existing factories in San Diego, Los Angeles, San Bernardino, Bakersfield, Fresno, Sacramento, Stockton and Roseville. These increases in plant capacity call for an addition of nearly 3,000 hp. to the power lines distributed between San Diego and Roseville. As ice plants must be operated at a uniform load twenty-four hours a day, the load factor will be very high—many months in the year eighty or ninety per cent—with an average for the entire year above sixty per cent. This means that some 12,000,000

By H. L. Lincoln
Superintendent of Factories, Union Ice Company

ELECTRICITY has made possible the small ice plant of 15 to 30 tons capacity. Mr. Lincoln describes the strides which have been made in ice plant electrification and discusses the advantages of this type of load to the central station. He estimates that proposed new construction will require an additional 12,000,000 kw-hr. during 1923.

kw-hr. will be added to the annual output of the power companies. Table No. I indicates the distribution of new ice plants in the state during the past six months.

While the amount of electrical equipment used in ice plants, under more or less special and abnormal conditions, presents many interesting characteristics, the most noteworthy feature is the very large percentage of electric-driven plants,

further emphasized when it is remembered that only a few years ago ice manufacturing was just as dependent upon steam power. The plant of fifteen years ago required distilled water for ice making, hence a boiler room and, quite logically, steam engines for supplying power. As a result the overhead expense on a small plant was very great and large factories were usually built. The smaller communities could be served only by rail shipments from these producing centers, resulting in a heavy meltage and large loss of a product manufactured at high cost.

Increased Range of Application

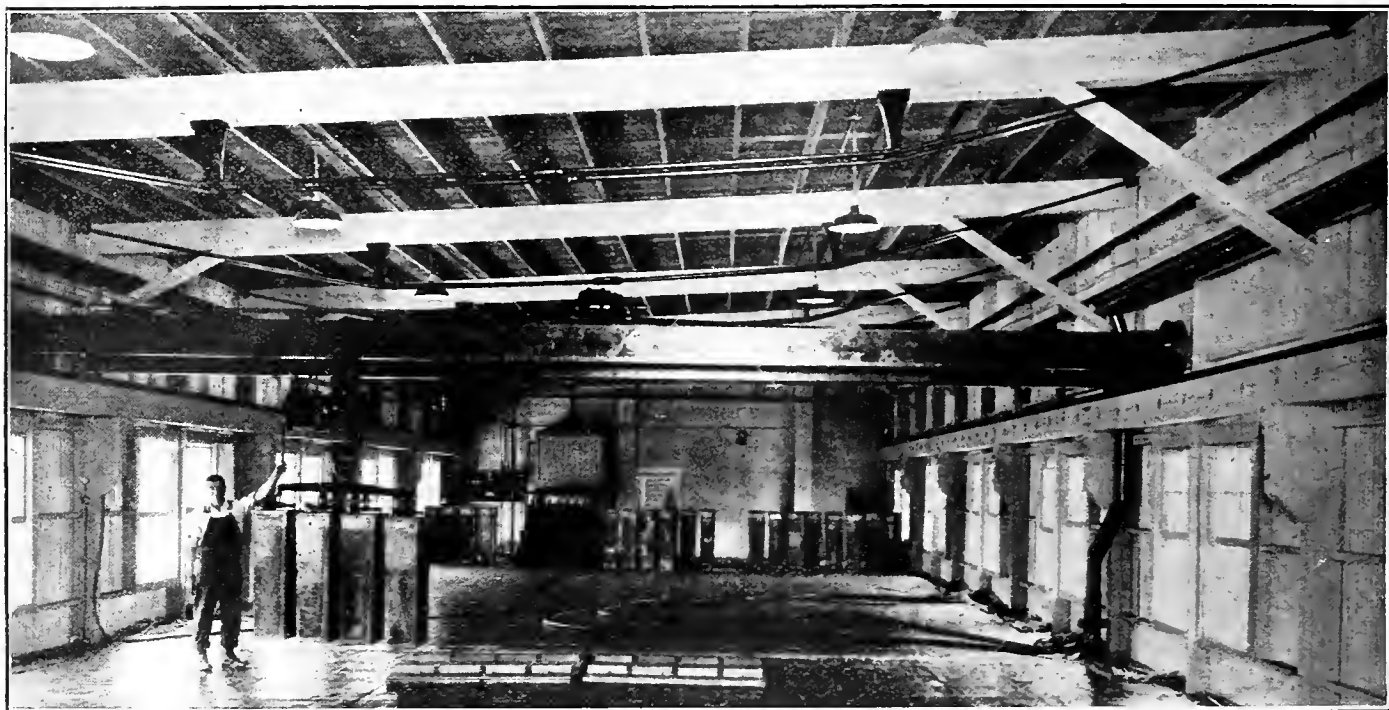
With the perfection of electrically driven plants, a smaller size unit has been developed and is being successfully operated as evidenced by the many factories of fifteen to thirty tons daily capacity installed this year. The most obvious benefit from this smaller plant is to the user of ice who obtains a product fresh from the factory, not damaged by rough usage in shipping. The power company has obtained

a high load factor customer and at the same time the manufacturer saves not only the meltage but has also reduced the non-producing part of his plant. The motor-driven compressor can virtually be placed in the same room with the freezing tanks, saving the entire cost of building for the boiler room along with its equipment. Practically the entire attention of the operating men can be concentrated on profitable production instead of maintenance of furnace efficiency or the desired vacuum. The engineer's duties have thus broadened from those of an operating man and mechanic to a production man with a much

and then keeping it in motion while freezing, accomplished by blowing air into the bottom of the can.

Ice Plant Operation

The operation of the present day ice plant consists of the following steps: If the raw water contains a large amount of dissolved solids, as most California water does, it is treated with some form of softener to remove the solids in solution and then poured into the cans, usually weighing three or four hundred pounds, to be frozen. These cans are placed in a tank of brine where a temperature of about fifteen degrees is maintained. The brine is cooled



Tank room of the Mutual Ice Company, showing the electrically operated can hoist and the modern method of illumination, using R. L. M. reflectors.

clearer appreciation of the requirements of the distribution department.

Fifteen years ago the art had not progressed sufficiently to make merchantable ice from the usual water supply known to the trade as raw water ice. It was necessary to distill the water to be frozen and as the amount of distilled water required exceeded the steam used in the engines driving the compressors, there was little incentive to develop mechanical efficiency, the engines practically functioning as reducing valves to supply water to the condensers. Unfortunately the steam was polluted with cylinder oil, requiring separators, skimmers and various forms of filters to insure merchantable ice. In spite of all care, however, only too frequently some oil was carried over into the ice cans, to be deposited in the customer's refrigerator or appear in a glass of ice water.

Before raw water could be frozen into merchantable ice, some of the earlier electric plants used complicated evaporators to furnish the distilled water. When it was possible to eliminate these the ice industry adopted the electric type of plant as standard construction. The problem was solved by treating the water chemically before placing it in the cans

by ammonia coils, the ammonia being supplied to the coils in liquid form. As the ammonia evaporates, the compressor pumps it into the condensers where it is again converted into a liquid by a constant and very considerable flow of cold water.

Sometimes this water can be obtained from a shallow well and again it is necessary to drill several hundred feet into the ground. Even then the supply may be insufficient and it will be necessary to use some means of cooling the water so that it can be circulated over the condensers again and again.

There are many types of apparatus used to cool water that involve the basic principle of evaporating a small portion to cool the rest. Whatever design is used, the water must be broken up into small drops and brought into contact with a large amount of air. When the relative humidity is low, fifty per cent or less, water can be cooled many degrees below the temperature recorded by an ordinary thermometer on a hot day. In some localities when the thermometer in the shade registers 95 deg. F., the water will fall from the tower at 70 deg.

The accompanying illustration shows a typical arrangement of ammonia condensers with a receiver drum to receive the liquid, placed below the cooling

tower, and a house for the water circulating pump adjacent. In a factory making thirty tons of ice a day, such a tower must cool 150 or 200 gal. of water per minute all day long. Usually a direct-connected, motor-driven, centrifugal pump is placed close to the tower basin to lift the water to the distributing troughs at the top. It then falls through ten or twelve screens of galvanized wire and is so broken up that it reaches the bottom in a fine mist. The prevailing wind carries a large volume of air between the louvres and through the mist which is cooled thereby. As the climatic conditions in California are

pounds, driven by a 7½-hp. motor. In the high pressure system, a pressure of 25 pounds will be maintained, requiring a 15-hp. motor.

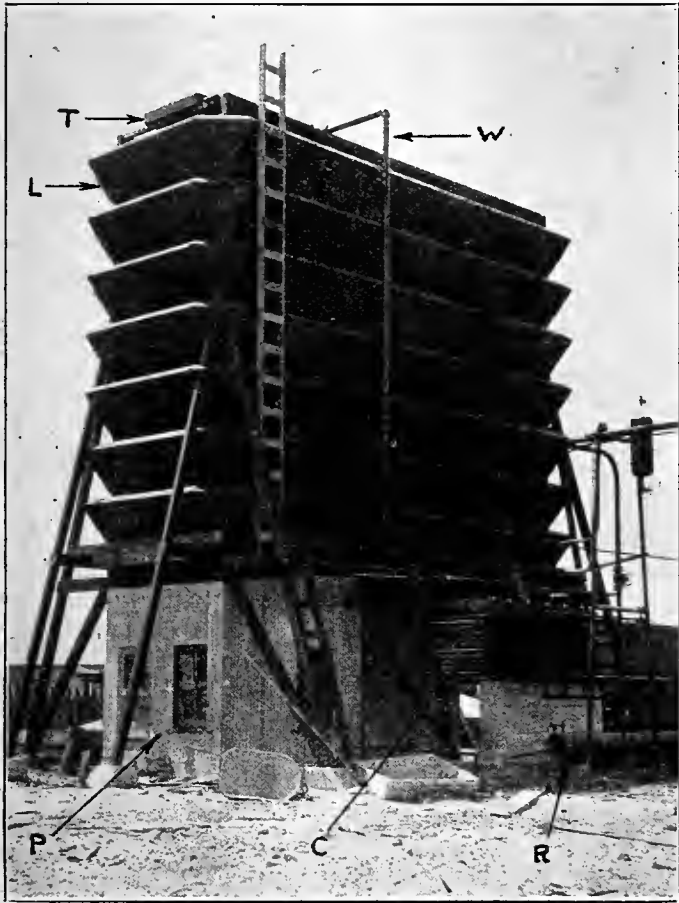
Condensing Water Pump of the centrifugal type, with a capacity of 150 to 200 gal. per minute, is usually direct connected to a 5-hp. motor.

Brine Agitator to keep the brine in the tank circulating, usually of the propeller type, either belted or direct connected to a 3-hp. motor. Sometimes two such agitators are installed.

Ice Hoist mounted on a traveling crane, with a lifting capacity of ½ or 1 ton, usually of a special design, to lift the ice cans from the tank, requiring 2 hp.

Well Pump, of a type depending on the depth of the well, sometimes being the condensing water pump above mentioned. However, when the water must be lifted 50 ft. or more a deep well turbine pump or air lift may be required.

With the exception of the hoists, all of these motors are operated 24 hours a day, month after month, with practically no change in the load. As a result, motors can be selected to run at full load, although the ammonia compressor motor must be capable of carrying a slight overload for a few hours,



Modern water cooling tower. The symbols indicate the following parts: T, distributing trough; L, louvres; W, water line to tower; P, pump house; C, ammonia condenser; R, ammonia receiver.

particularly favorable in the summer time—the humidity being very low when the temperature is very high—the water from a well designed tower is usually cooled to below 75 deg. and, as the quantity is only limited by the size of the pump, economic operation is made possible.

Electrical Equipment

To drive the machinery of a typical thirty-ton plant, the following motors will usually be found:

Ammonia Compressor quite similar in construction and operating characteristics to an air compressor, usually running at a speed of from 100 to 160 r.p.m., and driven by a 60-hp. 600 to 900-r.p.m. motor usually of the squirrel cage type.

Blower, or Air Compressor, to furnish air to keep the water in motion while freezing, at a pressure in the low pressure system of about three

occasionally. Obviously, such motors run at their highest efficiency and power factor, both probably nearly 90 per cent—a marked contrast to the average industrial plant, where often many motors carry no load or only a very light load many hours a day, with the power factor proportionately reduced. The latter condition lowers the power factor of the individual factory and places a drag on the entire system, thus reducing the capacity of the transmission

Table No. I.—Electrification of Ice Plants in California
First 6 Months, 1923

LOCATION	Installed Capacity—tons of ice daily	Hp. Connected	OWNER
San Diego.....	40 additional	150	Mutual Ice & Cold Storage Co.
Oceanside	15	50	The Union Ice Co.
Long Beach.....	60 additional	175	Home Ice Co.
Wilmington.....	30	100	The Union Ice Co.
Los Angeles.....	50 additional	150	Ice Distributing Co.
Los Angeles.....	15	50	
Los Angeles.....	60	150	The Union Ice Co.
Highland Park....	30	100	Pasadena Ice Co.
Glendale	30	100	The Union Ice Co.
Taft	30	100	Citizens Ice Co.
Taft	30	100	Central Cal. Ice Co.
Bakersfield	12,000 storage		Santa Fe R. R.
Dinuba	15	55	Central Cal. Ice Co.
Fresno	50 refrigeration	75	Fresno Consumers Ice Co.
Fresno	8,000 storage		Peoples Ice Corp.
Turlock	15	55	Central Cal. Ice Co.
Newman	15	55	National Ice & Cold Stor. Co.
Sonora	15 (changed from steam.)	50	Sonora Ice & Cold Storage Co.
Stockton	10 additional		
	1,200 storage	50	The Union Ice Co.
Stockton	75	300	Valley Ice Co.
Sacramento	7,500 storage	75	Consumers Ice & Cold Storage Company.
Roseville	300 additional	1,000	Pacific Fruit Express Co.
Vallejo	20	75	San Pablo Ice Co.
San Rafael.....	15	60	Marin Ice Co.
Santa Rosa.....	50	150	National Ice & Cold Stor. Co.
Plants using gas or oil engines			
Monrovia	30	100	Pasadena Ice Co.
Needles.....	350	1,200	Santa Fe R. R.

lines connecting the industrial centers with the mountain generating stations. If sufficient inducement were offered the ice manufacturers to use the more expensive and less rugged synchronous motors, the ammonia compressor presents an opportunity to still further correct this condition and, by eliminating the wattless watts, build up the system power factor and render more power available for other users.

It seems obvious that if an industrial load can be developed that will use power factor correcting apparatus, it will benefit all users of the service by saving the power companies the investment in electrical condenser equipment such as is now required to hold up the power factor of the distributing systems.

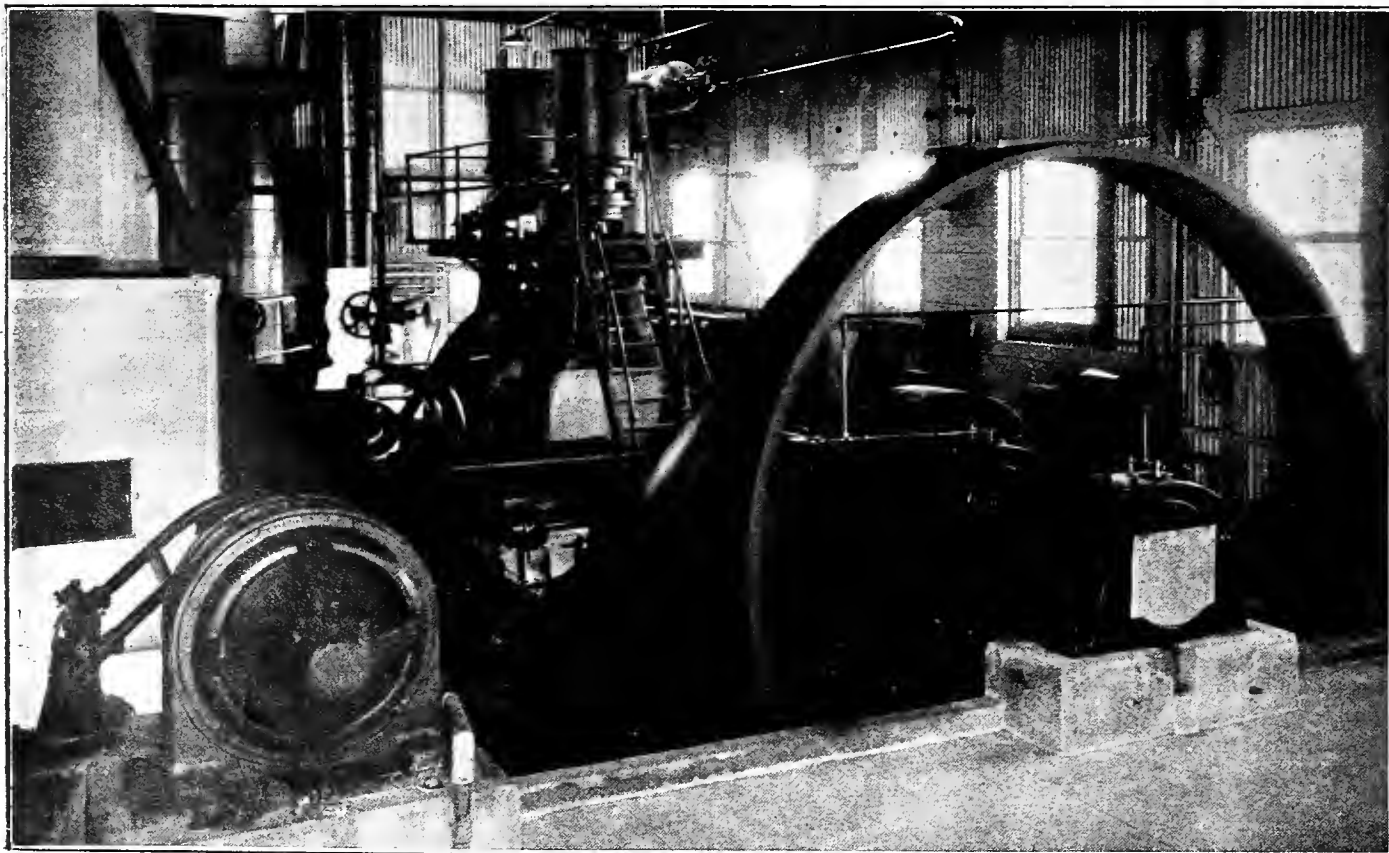
Plant Illumination

In addition to the high-quality, long-hour service developed by the motors, a large quantity of electricity is required to light the factories. As the process is continuous, it requires the factory to be lighted for long hours; in fact, the lighting load has a load factor much higher than that of many users of motors. Even so, it is a field that has been practically neglected by the illuminating engineers, so that frequently, particularly in the older plants, the lights may be said to serve as guides rather than to illuminate the work. Recently, considerable improvement has been made by taking advantage of the industrial reflectors now available. In the compressor room the selection is quite simple, requiring general lighting of relatively low intensity, but concentrated in the active sections of the room. In the storage rooms there is no necessity for accurate

work and as the frost-covered ceiling and the ice itself are virtually reflectors, a small amount of light is adequate for the work.

The condition is somewhat different in the tank room where the ice is frozen. There the light should be evenly distributed with an intensity of from 2 to $2\frac{1}{2}$ foot-candles at a lighting plane 6 in. below the floor. This will be found only in the more recently built factories, the older ones often averaging less than half a foot-candle. The character of the work is such that an even distribution is desirable, but there is no operation calling for close measurement, so that the high intensity frequently recommended for industrial plants is not necessary. In the accompanying illustration the R.L.M. type of reflector is shown installed in a factory that manufactures 80 tons of ice per day. The tank room is about 32 ft. wide by 110 ft. long and is brilliantly illuminated by 200-watt lamps. In another factory a tank of the same width, but 60 ft. long, is adequately illuminated with 100-watt lamps with similar reflectors, there being six of these units. In smaller factories, where the width of the tank is less, a single row of lights gives satisfactory illumination.

From the foregoing it is apparent that whatever is the point of view—lighting, motor application, mechanical apparatus, or electric service—the ice factory offers an opportunity for engineering study for the purpose of improving methods and conditions prevailing in this large and well established industry that is demonstrating its desire to keep up with the demand of the times, both as to installed capacity and the use of most approved equipment and methods.



Motor-driven compressor in the plant of the Mutual Ice Company, San Diego.

Light That Sells

By H. H. Courtright

Manager, Valley Electrical Supply Company, Fresno, Calif.

MERCHANTS in all communities are sensing the great psychological value of light in increasing prestige for their stores, and its practical value in selling the goods once the prospect has stopped to examine them. Better store lighting has become, like advertising, one of the merchant's easiest steps towards better sales. Light has been demonstrated to be the best tonic for speeding up business. The merchant has learned that good light in the store interior and in the display windows increases the average amount of goods sold per customer, decreases the goods returned, causes fewer complaints, brings more buyers, promotes greater cleanliness in the store, requires less time to make sales, and induces more courteous attention from the sales force.

Where the electrical industry has been talking intensities of 10 foot-candles in the store interior

secured by merely closing master switches, which are provided with dimmer loops for the future installation of master dimmers. Two banks of lamps, placed 12 in. apart in the main windows, are so wired that every third lamp, every second lamp, or all, may be turned on at one time. The lamps are placed 12 in. apart and are mounted in X-Ray reflectors. The lower row of lamps is provided with a special metal frame to carry color screens.

An examination of the accompanying diagram of the show windows and a portion of the main sales floor shows that the main window at the corner of Tulare and J Streets has an area of approximately 620 sq. ft., illuminated by 15,450 watts, in lamps consisting of 103-150-watt X-Rays arranged for three intensities or colors. This does not include an adjustable spotting bank of 1,800 watts, in 12 X-Ray units, or a 600-watt bank of footlights. In the less import-



A view of the display windows of The Wonder, showing the effect of a 400 foot-candle intensity.

and 40 to 100 foot-candles in the store windows, the progressive merchant is in the proper frame of mind to listen to arguments for intensities two or three times greater than common practice dictates. The Wonder Cloak and Suit House, a ladies' ready-to-wear department store, in Fresno, Calif., has recently moved into a new building, which is conceded to be one of the most modern in the United States in lighting equipment and which conclusively demonstrates that the present-day merchant is fully aware of the value of light to his business. One of these merchants is Max Cahn, whose farsightedness did not allow him to forget light as a sales agent, and who made it one of his first tasks to consult an illuminating engineer while the new store was yet only a vision.

Before launching into a description of some of the details of this equipment, it might be stated that the store interior has a lighting intensity of 18 foot-candles, while the show windows have an intensity of 400 foot-candles. The effectiveness of the illumination is demonstrated in the accompanying views of the store windows and the interior.

The lighting of the show windows is so designed that various color effects or light intensities may be

ant windows the installation is not so large. A further examination of the diagram will show that in the small island windows the number of watts per foot is even greater than in the main windows, as there are no walls to act as reflectors and to confine the light.

Details as to the arrangement of the reflectors and the construction of the steel frames of the color screens are also shown on the diagram.

Sufficient convenience outlets have been installed in the windows for the use of floor lamps or any other appliance needed in the window trim. Elixits have been installed where the fixtures are attached, so that these may be changed from time to time should the window trimmer desire. B. C. Hampton, display manager for The Wonder, accredits much of the success and beauty of his window displays to the capacity and flexibility of the electrical illumination, which he likens to a first-class stage equipment.

That equipment of this character constitutes an added incentive for creating original window displays is demonstrated by the fact that the two outstanding windows which are reproduced as a frontispiece for this issue won for Mr. Hampton, the display manager, first prize in a recent window display con-

test conducted by the International Displaymen's Association. Photographs of decorated windows from all parts of the country were entered in the contest, first prize in which was a gold medal. No pictures, however, could reproduce the color effects



Glare and shadows are eliminated in the fitting and dressing rooms by the employment of a novel scheme of indirect lighting.

which were secured by Mr. Hampton through the use of the lighting equipment.

In the store interior special fixtures were not available. Too often the better class of store derives its major illumination from some ornate luminaire designed for decorative purposes rather than for lighting purposes. In the case of The Wonder, this is not the case, and while the fixtures harmonize with the decorations, they are strictly utilitarian and provide the maximum amount of illumination. The four main fixtures weigh 400 lb. each and combine the features of both direct and indirect lighting, providing two distinct shades and intensities. The accompanying drawing shows a cross-section of one of these fixtures. For convenience of cleaning and re-lamping, all main ceiling units are suspended on cable hoist equipments, with automatic contractors, doing away with ladders clogging the sales floor, should it become necessary to change a lamp or luminaire during the sales hours.

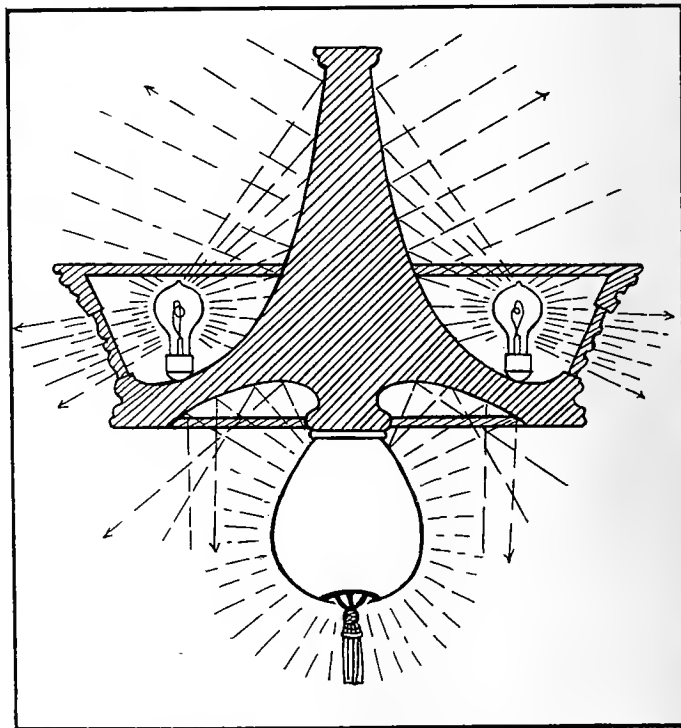
All interior show windows and glass show cases are provided with continuous reflectors, so as to amply illuminate the articles on display. Throughout the store, 600 ft. of these reflectors are used. Each show case has an individual switch, so that the

clerk in the department where the case is located is responsible for seeing that the current is turned off each night.

In the special display rooms more ornate fixtures are employed, as is indicated in one of the accompanying illustrations.

A feature of the lighting installation is the method employed to illuminate the dressing and fitting rooms. An absolutely new illumination feature is achieved by indirect lighting. As the dressing room door is closed, the room is flooded with clear, white light, free from shadows or glare. A 300-watt "Litekraft" reflector unit is placed directly over each of the two mirrors and is trained on the ceiling. Shadows are entirely eliminated and the dressmaker or fitter is not bothered by glare, as has been the case in the past. The mirrors are offset from the wall and are placed at an angle, so that it is possible to get a back and front view of the gown or dress which is being fitted without turning the body. This feature of the installation has already attracted considerable attention and has been studied by several of the large stores in other cities in California.

The primary lighting of the basement, where a cheaper line of goods is displayed, is secured entirely



Cross-sectional sketch of one of the luminaires in the main sales department.

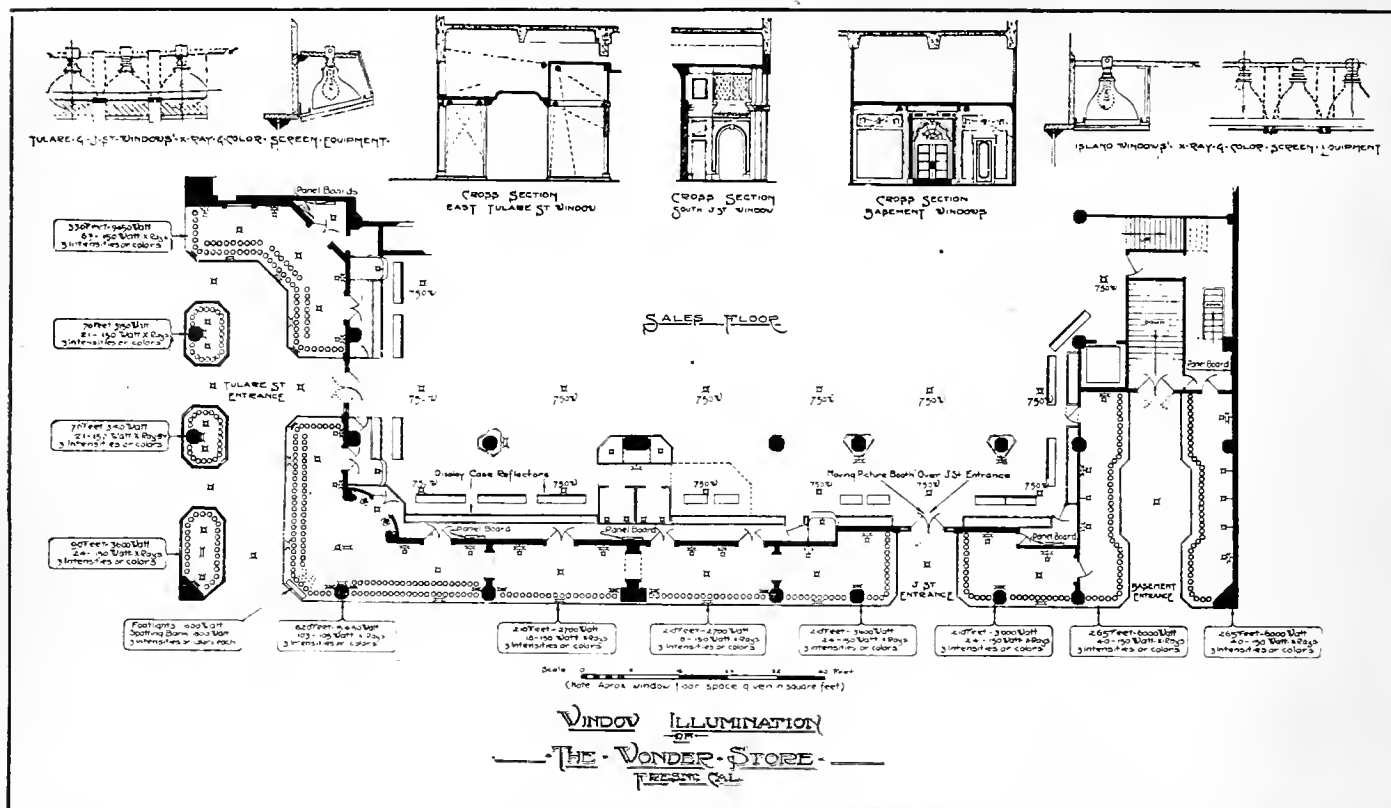
from indirect cove lighting. Powerful X-Ray units are set in troughs around the columns supporting the ceiling. Supplementing this primary system is a system of direct lighting, consisting of a series of bowl-type luminaires, used to increase the intensity on special days of sales.

The wiring features are designed to give control of the many lighting effects from various points in the store, with a master switchboard at the foot of the basement stairway. Steps have been taken, so



THE upper picture shows the main sales floor when an intensity of 18 foot-candles is maintained through the use of proper luminaires. View on the right shows the method of installing the reflectors in the corner display window. The spotting bank is shown in center of picture. The lower picture shows the French Parlor, one of the more exclusive sales rooms.





Detailed plan of the illumination of the show windows and main sales floor, showing the location of the X-Ray reflectors.

that the store may be lighted in case the a. c. service which supplies the building should fail. A small motor generator set is installed in the basement, together with a sufficient number of storage batteries to supply an emergency d. c. lighting circuit for several hours. The emergency lights are located at vantage points throughout the store.

Floor plugs and convenience outlets are located at various points throughout the building where decorative lamps or cleaning apparatus may be connected with a minimum of extension cords.

Special electrical devices are installed in the manicuring, hair dressing and beauty parlors on the second floor. Each of the many private booths has from five to eight convenience outlets for the use of violet-ray machines, hair dryers, vibrators and other devices. Hot water for this department is supplied from an electric water heater. Special decorative lighting fixtures have been installed for the convenience of the beauty specialists, which, together with the original color scheme of the rooms, makes the place more like milady's boudoir than a beauty shop. Miss Mina Ring, manager of this department, is well pleased with the radical change of illumination met at once as one enters her parlors through the store. This department is one of the most modern in the country.

A standard motion picture projection booth is installed over the J Street entrance to the main sales floor. The machine has been provided for use during fashion shows, when motion pictures of the latest styles from New York and Paris may be flashed on a screen hung from the mezzanine floor. Spot lights are also installed in the projection room and on the mezzanine floor to illuminate the models who are dis-

playing gowns during one of these fashion shows. Remote control switches to turn off all lights in the main sales room are also located in the booth.

The electrically operated air cooling and washing equipment is located in the basement and the penthouse. The air may be changed throughout the store every three minutes. Owing to the fact that Fresno is located in the interior valley, where the temperature often reaches 100 deg. F. in the summer months, refrigerating apparatus is installed for cooling the air. Immediately behind the air cooling and washing equipment is installed a high frequency ozonator apparatus to additionally clean the air and precipitate surplus moisture, assuring the store fresh air, welcomed by customers and sales force alike. Electrically operated hand drying machines are located in all of the rest rooms and toilets.

The store is served from a special set of transformers located in a vault in the basement. Current is supplied at 2,300 volts and stepped down to 220 and 110 volts.

A 28-ft. high electric sign is located on the top of the eight-story building in which the store is located.

That an installation, such as The Wonder, constitutes a powerful selling argument for better lighting has already been demonstrated. Its effect has been felt in Fresno, for enterprising merchants, aware of the increased business which has resulted, are already planning improvements to their own stores. Interest in the installation has been aroused in both Los Angeles and San Francisco and illumination engineers from these two cities have inspected the store and cite it as one of the most modern in the country to their prospective customers.

Science Provides Modern Ally for Director of Film

HANDLING the vast crowds of a motion picture spectacle, involving the minute direction of thousands of "extras" in mob scenes, has been reduced from one of the gravest problems that confront the film producer to one of the simplest operations in his hectic calling. Electricity has smoothed his path toward realism, and the microphone and loud-speaking telephone, operated by power amplifiers, have cut away with one sweep the bonds that once held him to days of painstaking rehearsals, and disappointing fiascos that of yore cost thousands of feet of spoiled negatives.

The most perfect example of what amplifiers can do for the picture producer is seen in the production of "The Hunchback of Notre Dame," a super-production being filmed at Universal City, Calif. Its cast



Howard Santee, Western Electric Amplificationist, and Wallace Worsley, motion picture director, examining the voice amplifier used in connection with the production of the "Hunchback of Notre Dame."

of nearly five thousand people, working in a setting that covers more than nine acres, are perfectly directed by the most complete installation of its kind ever devised for such work.

The basis of the system is a Western Electric No. 2 public address system. To adapt it for use on a film set, various special features have been added to it.

Two boards control the apparatus. One, the power control, handles the current, generated by a motor generator installed in the building that houses the boards, and actuated from the 110-volt line current on the premises. The plate voltage is 350 and the filament 18.

Eight transmitters were supplied with the system, usable at any point in the big setting. By means of a control switch in the switchboard house the director can be connected to any point at once.

In the control room is a monitor horn, by which the operator can instantly detect the condition of the apparatus, and twelve Western Electric 6A horns, connectable in multiple, are distributed at the important points. These are specially designed for this type of work. Three are in multiple over the big replica of Notre Dame Cathedral, the rest in and about the old buildings on the Paris streets reproduced in the setting.

Seven circuits lead off the volume control switchboard for the twelve horns and any number may be connected for any special needs. In the control house is a potentiometer control ranging over twenty-four points to regulate distance of carrying. Each reproducer has in addition a rheostat control.

The volume indicator in the control house is an innovation in this type of system. It operates on a new principle, and is in effect a galvanometer showing fifteen points on proper regulation.

A field telephone set enables the director on the scenes to talk back to the switchboard in case of any derangement of the apparatus.

The first three steps of amplification are single, and the fourth or final is a "push-pull" arrangement—in effect power amplification.

Radio messages can be received by use of a radio receiver, and amplified over the board and broadcasted in the same manner as the director's messages are transmitted.

The uses of the set on the picture lot are manifold. Most important of course is the work of directing the mob scenes, one director in the tower being able to direct any part of the crowd.

The "inspirational music," a valued adjunct to acting for films, is also broadcasted for the crowds of players over the apparatus. In fact, the set has made possible for the first time in film history the use of music in mob scenes. Radio concerts between waits are given the crowds of actors, too, thus strengthening morale and creating an esprit de corps that alone has saved a small fortune in the big picture, according to Wallace Worsley, director, and Lon Chaney, star of the production.

The entire installation cost in the neighborhood of seven thousand dollars and its saving has paid for itself many times over. The picture is "the largest ever filmed," and includes seventy-five principals augmented by a vast army of extras, so it can be seen that any saving of time, even in moments, means big sums of money.

The installation was made by Howard B. Santee, Western Electric engineer who came from New York for the work; Major Nathan Levinson, Western Electric amplification specialist, and G. E. Anderson, engineer for the Pacific Telephone Company, Los Angeles district, assisted by the Universal City electrical department staff.

Public Relations Is Theme of Northwest Convention

PUBLIC relations and the attitude of the public toward the utilities were the keynote of the sixteenth annual convention of the Northwest Electric Light and Power Association, held at the Hotel Washington, Seattle, June 27-30, 1923. Over 250 members and guests registered for the sessions, which were pronounced to be the most successful in the history of the organization.

The convention opened, Wednesday, June 27, with an address of welcome by A. W. Leonard, president of the Puget Sound Power & Light Company. A response was made by John A. Laing, vice-president and general attorney of the Pacific Power & Light Company. In the president's address, Norwood W. Brockett, of the Puget Sound Power & Light Company, stated that the program for the 1923 convention was unusual in that a number of men from outside of the electrical industry had been invited to come before the members and frankly discuss the problems of the industry, as viewed by those disassociated with its activities. He emphasized the efforts which had been made during the year to get more members interested in the work of the association. One of the most important accomplishments of the past year, he declared, was the arrangements made toward a scholarship in any of the higher institutions of Washington to the high school student writing the best essay on state regulation of utilities. This step, he believed, would tend to promote a closer study of public utilities by the rising generation, giving them a clearer understanding of some of the problems of the day.

Leaders Speak

The afternoon session was devoted to a general program in which business leaders from outside the industry gave their views regarding utility problems. J. D. Barnhill, president of Evans & Barnhill, Inc., San Francisco, spoke on "Public Utility Publicity and Advertising." Mr. Barnhill declared that the problem of the utilities today was no longer an economic one but a social one. Power company engineers, he said, have succeeded in solving the problems of rendering service in an efficient and economical manner, and now it remains for the central stations to make the public conscious of this fact. He stated that the criticism which is directed against the utilities is largely due to a lack of information. It was his opinion that advertising has pleaded similar cases before the court of popular opinion and has won the decision. He believed that the forces which clamor against the utility can be converted into positive and friendly forces by the simple expedient of popular education through frank and constructive advertising.

Dangers of Socialism

H. S. Ives, secretary of the Casualty Information Clearing House of Chicago, delivered the feature address of the day, giving the members of the association an entirely new angle on their problems.

He stressed the necessity for a realization on the part of utilities and every privately owned enterprise that they have a common problem in combating the public ownership sentiment which is sweeping over the nation and which threatens to engulf the country in a reign of Socialism. His topic, "State and Municipal Ownership from the Insurance Man's Point of View," demonstrated that the interdependence of private enterprise in fighting municipal and state ownership is not a myth. He appealed for a closer understanding between those industries which are threatened by this sentiment.

"Merchandising" was the title of a paper given by George C. Pratt, president of the Washington State Retailers' Association. Mr. Pratt showed where those engaged in merchandising electrical appliances were not taking full advantage of their window displays to sell goods. He declared that the progressive and successful merchant changes his window trim twice a week, while the electrical retailer usually fails to make a new trim as often as once a week. If the industry expects to sell household electrical appliances, he declared, steps must be taken to make it convenient for the purchaser to use them by standardizing the plugs and receptacles at both ends of the cord. He emphasized the necessity of proper contact with women customers, as they are the largest purchasers of electrical appliances.

E. V. Kuykendall, director of the Board of Public Works of the State of Washington, addressed an evening meeting on "Public Opinion on Commission Regulations." He stated that utilities generally favor commission regulation, but the existence of these bodies is threatened by popular disfavor. Courtesy in a utility's dealings with the public, he declared, is more important than sheer efficiency and low rates combined.

Two other speakers addressed the evening meeting. W. H. McGrath, vice-president of the Puget Sound Power & Light Company, spoke on "Public Ownership of Utility Securities," outlining the strides which have been made in this important phase of development during the past few years. Carl D. Jackson, general counsel, National Electric Light Association, New York, discussed some of the important commission and court decisions in his address on "Trend of Court Decisions and Legislation."

In his talk, Mr. McGrath spoke of the good will which can be attained through the widespread distribution of utility securities among consumers and the public in general. He said:

"The reason for the misconception of public utilities on the part of the people is the radical press, which fosters hostility to these companies. When we have tens of thousands of local stockholders in our local utilities, the radicals will not dare to make glaring misstatements of facts. In California, last November, for instance, the people defeated a socialistic scheme for state ownership of the power

business by 5 to 2. We must not be misled in this great Northwest by the Utopian schemes of an organized fanatical minority, if the basic principles of the constitution and the rights of human liberty and initiative are to be preserved."

Section Meetings

Parallel meetings of the Commercial, Technical, Public Relations and Accounting sections were held throughout the day, Thursday, June 27. The work

and "Electric Vehicles." Lewis A. Lewis, commercial manager of the Washington Water Power Company, presided at these sessions.

Both the Technical and Accounting section meetings brought forth much interesting discussion. George F. Nevins, secretary and treasurer of the Pacific Power & Light Company, presided over the meetings of the Accounting Section, while R. M. Boykin, manager, North Coast Power Company, as



Delegates and guests at the sixteenth annual convention of the Northwest Electric Light and Power Association, Hotel Washington, Seattle, June 27-30, 1923.

of these various sections has been carried out during the year by numerous sub-committees functioning under the direction of an executive committee.

The most important of the section meetings was that given over to public relations, presided over by George L. Myers of the Pacific Power & Light Company. The following papers were read and discussed at these meetings: "Relations With Educational Institutions," by O. B. Coldwell, vice-president, Portland Railway, Light & Power Company; "Employees Relations With the Public," by A. C. McMicken, sales manager, Portland Railway, Power & Light Company; "Publicity," by J. V. Strange, assistant manager, Pacific Power & Light Company; "Illustrated Lectures and Motion Picture Exhibits," by Lewis A. McArthur, general manager, Pacific Power & Light Company; "Organization of Committees on Public Utility Information," by George L. Myers, assistant to the president, Pacific Power & Light Company; "Public Ownership of Securities," by S. E. Skelley, manager, investment department, Pacific Power & Light Company; "Public Speaking," by W. R. Putnam, vice-president and general manager, Idaho Power Company.

All of these papers brought forth considerable discussion and it was the consensus of opinion at the close of the meetings that the work of the committees during the past year has been highly successful.

The meetings of the Commercial Section were given over to reports from the lighting, power and merchandise sales bureaus, together with papers on "Commercial Service and Relations with Customers"

chairman of the Technical Section, led the discussion at the meetings of that body.

On Friday, practically everyone who registered at the convention went by boat to Victoria, B. C., where the golf tournament, annual banquet and final executive session were held.

New Officers

The election of officers, held at the final executive session, placed the following men at the helm of the organization for the coming year.

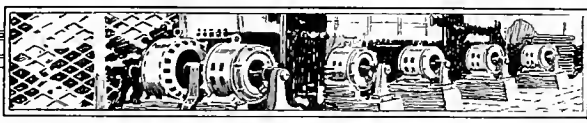
President: George L. Myers, assistant to the president, Pacific Power & Light Company, Portland.

Vice-presidents: R. M. Boykin, manager, North Coast Power Company, Portland; R. B. King, general superintendent, Idaho Power Company, Boise; S. R. Inch, vice-president and general manager, Utah Power & Light Company, Salt Lake City; A. C. McMicken, sales manager, Portland Railway, Light & Power Company, Portland.

Executive Committee: Lewis A. Lewis, commercial manager, Washington Water Power Company, Spokane; L. B. Faulkner, president, Olympia Light & Power Company, Olympia, Wash.; L. A. McArthur, vice-president and general manager, Pacific Power & Light Company, Portland.

The Kilowatt Cup tournament, held on the Colwood links, at Victoria, was won by Bon E. Stein of Seattle, who had both low net and low gross score. A. C. McMicken of Portland was second, while A. W. Leonard of Seattle was third. Entertainment features during the convention consisted of drives, visits to points of interest and special luncheons.

ELECTRICAL CONSTRUCTION



By E. Earl Browne

DUE to the extended use of electric ranges and air heaters in apartments and realizing that services "over-coppered" often run the cost of these installations into a large sum per kilowatt of connected load, the power companies, contractors and inspection departments are attempting to co-operate in arriving at a reasonable set of requirements covering the installation of services, feeders and sub-feeders.

The subject of diversity factors, to be allowed in connection with these installations, is one that at the present time is more or less a "cut-and-try" proposition, but as it was necessary to make a beginning somewhere the Department of Electricity of San Francisco recently issued an order covering installations of three or more ranges, allowing the following diversity factors in calculating the size of services:

- 3 to 6 Ranges—Largest range, full load; balance 66⅔%
- 7 to 10 Ranges—Largest range, full load; balance 50%
- Over 10 Ranges—50% full load

In regard to air heaters, however, a different problem presents itself as it is realized that there is a possibility of occasions arising where all heaters will be in operation, particularly in a building containing apartments consisting of a living room, bath and kitchen. The living room is often the only room with a heater in it; therefore, each apartment has but the one heater and in cold weather the diversity would be largely dependent on the number of tenants absent from their apartments. In cases such as this a factor of 85 or 90 per cent in calculating the size of service conductors would probably be reasonable, although the City of San Francisco Department of Electricity has established a rule allowing service feeds and sub-feeds to be calculated on the basis of 100 per cent for the largest heater and 50 per cent for the remainder.

In case of buildings with apartments, each containing a living room, bed room, kitchen and bath, with a heater of the following sizes in each, a factor of 60 per cent would probably be ample in calculating the size of service:

Living room.....	3¼kw.
Bedroom	2½kw.
Bath	1¾kw.
Kitchen	1¾kw.
	9½kw.

The sub-feeders to the apartments would in the case of the apartment with a range and one air heater have to be wired for 100 per cent diversity

factor. Where the apartments have a range and four air heaters, as assumed above, the range would be wired for 100 per cent diversity factor and the air heaters for not less than 70 per cent. Other common sizes of apartments with various combinations of range and air heaters would be calculated as follows:

Two-Room Apartments (Example No. 1).

- 1 range 5 kw. x 100% D.F.=5.00 kw.
- 1 air heater in living room, 3¼ kw. x 100% D.F.=3.33 kw.
- Total 8.33 kw.
- 8.33 kw. ÷ 230 volts=36 amp.

Two-Room Apartments (Example No. 2).

- 1 range 5 kw. x 100% D.F.=5.00 kw.
- 1 air heater in living room, 3¼ kw. x 100% D.F.=3.33 kw.
- 1 air heater in bath room 1½ kw. x 100% D.F.=1.67 kw.
- Total 10.00 kw.
- 10.00 kw. ÷ 230 volts=43.5 amp.

Two-Room Apartments (Example No. 3).

- 1 range 5 kw. x 100% D.F.=5.00 kw.
- 1 air heater in living room, 3¼ kw. x 75% D.F.=2.50 kw.
- 1 air heater in bath room 1½ kw. x 75% D.F.=1.25 kw.
- 1 air heater in kitchen 1½ kw. x 75% D.F.=1.25 kw.
- Total 10.00 kw.
- 10.00 kw. ÷ 230 volts=43.5 amp.

Three-Room Apartments (Example No. 4).

- 1 range 7 kw. x 100% D.F.=7.00 kw.
- 1 air heater in living room, 3¼ kw. x 100% D.F.=3.33 kw.
- 1 air heater in bed room 2½ kw. x 100% D.F.=2.50 kw.
- Total 12.83 kw.
- 12.83 kw. ÷ 230 volts=56 amp.

Three-Room Apartments (Example No. 5).

- 1 range 7 kw. x 100% D.F.=7.00 kw.
- 1 air heater in living room, 3¼ kw. x 80% D.F.=2.67 kw.
- 1 air heater in bed room 2½ kw. x 80% D.F.=2.00 kw.
- 1 air heater in bath room 1½ kw. x 80% D.F.=1.33 kw.
- Total 13.00 kw.
- 13.00 kw. ÷ 230 volts=56.5 amp.

Three-Room Apartments (Example No. 6).

- 1 range 7 kw. x 100% D.F.=7.00 kw.
- 1 air heater in living room, 3¼ kw. x 70% D.F.=2.33 kw.
- 1 air heater in bed room 2½ kw. x 70% D.F.=1.75 kw.
- 1 air heater in bath room 1½ kw. x 70% D.F.=1.17 kw.
- 1 air heater in kitchen 1½ kw. x 70% D.F.=1.17 kw.
- Total 13.42 kw.
- 13.42 kw. ÷ 230 volts=58 amp.

Four-Room Apartments (Example No. 7).

- 1 range 7 kw. x 100% D.F.=7.00 kw.
- 1 air heater in living room, 3¼ kw. x 70% D.F.=2.33 kw.
- 1 air heater in bed room 2½ kw. x 70% D.F.=1.75 kw.
- 1 air heater in bed room 2½ kw. x 70% D.F.=1.75 kw.
- Total 12.83 kw.
- 12.83 kw. ÷ 230 volts=56 amp.

Four-Room Apartments (Example No. 8).

1 range	7 kw. x 100%	D.F.=7.00 kw.
1 air heater in living room,	3½ kw. x 70%	D.F.=2.33 kw.
1 air heater in bed room	2½ kw. x 70%	D.F.=1.75 kw.
1 air heater in bed room	2½ kw. x 70%	D.F.=1.75 kw.
1 air heater in bath room	1½ kw. x 70%	D.F.=1.17 kw.
		Total 14.00 kw.
14.00 kw. ÷ 230 volts=		61 amp.

Four-Room Apartments (Example No. 9).

1 range	7 kw. x 100 %	D.F.=7.00 kw.
1 air heater in living room,	3½ kw. x 66⅔%	D.F.=2.22 kw.
1 air heater in bed room	2½ kw. x 66⅔%	D.F.=1.67 kw.
1 air heater in bed room	2½ kw. x 66⅔%	D.F.=1.67 kw.
1 air heater in bath room	1½ kw. x 66⅔%	D.F.=1.11 kw.
1 air heater in kitchen	1½ kw. x 66⅔%	D.F.=1.11 kw.
		Total 14.78 kw.
14.78 kw. ÷ 230 volts=		64 amp.

Assuming, then, a 12-apartment building, as per Example No. 1, the service for same would be figured as follows:

12 ranges of	5 kw. each=	60 kw. x 50%	D.F.=30 kw.
12 air heaters of	3½ kw. each=	40 kw. x 85%	D.F.=34 kw.
		Total	64 kw.
Total	64 kw. ÷ 230 volts=	278 amp. on two conductors	
Ranges	30 kw. ÷ 230 volts=	120 amp. on neutral	

Therefore, two 300,000 C.M. and one No. O B&S.R.C. cables in 2½-in. conduit and a 400-amp. service switch would be required.

A six-apartment building, as per Example No. 5, would have the service calculated as follows:

1 range of	7 kw. each=	7 kw. x 100 %	D.F.= 7.00 kw.
5 ranges of	7 kw. each=	35 kw. x 66⅔%	D.F.=23.33 kw.
6 air heaters,	3½ kw. each=	20 kw. x 60 %	D.F.=12.00 kw.
6 air heaters,	2½ kw. each=	15 kw. x 60 %	D.F.= 9.00 kw.
6 air heaters,	1½ kw. each=	10 kw. x 60 %	D.F.= 6.00 kw.
		Total	57.33 kw.
Total	57.33 kw. ÷ 230 volts=	250 amp. on two conductors	
Ranges	30.33 kw. ÷ 230 volts=	132 amp. on neutral	

Therefore, two 250,000 C.M. and one No. O B&S.R.C. cables in 2½-in. conduit and a 400-amp. switch would be required.

The service for a 24-apartment building, as per Example No. 9, would be figured as follows:

24 ranges of	7 kw. each=	168 kw. x 50%	D.F.=84 kw.
24 air heaters of	3½ kw. each=	80 kw. x 60%	D.F.=48 kw.
48 air heaters of	2½ kw. each=	124 kw. x 60%	D.F.=74 kw.
48 air heaters of	1½ kw. each=	80 kw. x 60%	D.F.=48 kw.
		Total	254 kw.
Total	254 kw. ÷ 230 volts=	1,104 amp. on two conductors	
Ranges	84 kw. ÷ 230 volts=	365 amp. on neutral	

Therefore, two 2,000,000 C.M. and one 500,000 C.M.R.C. cables in 6-in. conduit and a 1,200-amp. service switch would be required. Due to the fact that 2,000,000 C.M. cable is difficult to handle, it is preferable to use two 750,000 C.M. cables for each of the two outside conductors, which would make a total of four 750,000 and one 500,000 C.M.R.C. cables in a 5-in. conduit; or two 750,000 C.M. and one No. 3/O in each of two 3½-in. conduits would solve the problem, as it is often difficult to procure larger than 4-in. conduit in regular stock.

If considerable air heating at 230 volts is to be connected, it is preferable to the power company to

use 3-phase with a neutral from the middle tap of one transformer in a delta connected bank, to give the 220/110 volts, 3-wire, single-phase for lighting, ranges, convenience outlets, etc. This arrangement also saves the owner a considerable sum in investment for service, feeder and sub-feeders, as the current per wire for the 3-phase load is but 58 per cent of the current in the outside conductors of a single-phase system.

Using the last service example as an illustration:

The heating load=	170 kw.=	427 amp. on 3-phase
The range load=	84 kw.=	365 amp. on 1-phase

which would impose a load of 792 amp. on each of two conductors, 442 amp. on each of one conductor, 365 amp. on neutral conductor. This would then require a 4½-in. conduit, containing four 500,000 C.M. cables, one 600,000 C.M. cable for 3-phase conductors and one 500,000 C.M. cable for neutral and an 800-amp., four-pole service switch, if all current is to be disconnected by one switch, or one 600-amp., three-pole for the 3-phase heating, if it is metered separately from the ranges, and a 400-amp., three-pole for the 220/110-volt single-phase ranges.

Instructions for Telephone Wiring

Referring to the last article, the following additional information relative to installing telephone systems in apartment houses is recommended by the telephone company:

The recesses necessary to accommodate the vestibule sets of apartment house systems are as follows: 12-line system, inside measurements, 10⅞ in. high, 5½ in. wide, 2 in. deep; 24-line system, inside measurements, 14⅝ in. high, 5 27/32 in. wide, 2 in. deep; 36-line station, inside measurements, 18 in. high, 6 1/16 in. wide, 2 in. deep; No. 377C 36-line station, inside measurements, 19¼ in. high, 7⅝ in. wide, 4 in. deep.

Size of apartment set, including coin collector, 7⅞ in. wide x 23¾ in. high x 3 in. deep. Minimum size of recess for same, 16 in. wide x 26 in. high x 3 in. deep.

Dimensions of the ordinary wall telephone set with coin collector: width over receiver 9½ in., height of blackboard 21 in., depth from mouth-piece to rear surface 7 in. Terminate at a common point, leaving 9 ft. of slack in buildings where 20 or more pairs are necessary and 6 ft. where there are less than 20 pairs.

The following schedule relative to the size of conduit must be adhered to:

One pair	½-in. conduit
Two and three pair.....	¾-in. conduit
Four and five pair.....	1-in. conduit
Six and seven pair.....	1¼-in. conduit
Eight to thirteen pair.....	1½-in. conduit

In large apartments where an office is kept open it is desirable to have a P.B.X. (private branch exchange) system, as with this system if a tenant is out an important call or message may be left for prompt delivery on his return.

JOBBER, DEALER AND SALES AGENT



Second Electric Home Is Displayed at Sacramento Electrical Men Capitalize on "Better Homes Exposition" Idea and Present Display to Nine Thousand People

The first half of the California Electrical Campaign's electric home program for 1923, closed with the showing of a bungalow in Sacramento, June 1-10. A total of 8,500 people visited the home, which is considered a fairly good showing, as this was the second home to be displayed in the city.

The industry was able to capitalize on the "Better Homes Exposition" idea, for the bungalow was on display during Better Homes Week, along with several other model residences.

The feature of the display was the cooperation secured from the local newspapers as a result of the exposition. In a special 14-page Better Homes section of the Sacramento Bee, the industry placed 328 in. of display advertising and secured many columns of favorable publicity.

The question of the methods which should be employed in advertising the electric home was solved in a novel manner. One large advertisement was used by the California State Association of Contractors and Dealers, con-

taining the names of all members in the city.

The following poem, submitted by a member of the electrical industry as descriptive of the home, is used in place of a more prosaic description:

The electrical home is lighted
In every conceivable way,
That's modern and bright and attractive
And it's out near "Donner Way."

People are thronging in hundreds
To see this home of light,
Many will call and then come again
Just for a second sight.

Housewives and brides and maidens,
Husbands—or those to be—
Pass steadily through the portal
To learn electrically.

"Carly" they call the builder,
The furnishers, "Frazier & Dunn,"
The praises of the multitude
Their sterling work has won.

There's beauty and music in it,
Which comes from Sherman & Clay,
The lighting comes from Hobrecht
He does it well, I'll say.

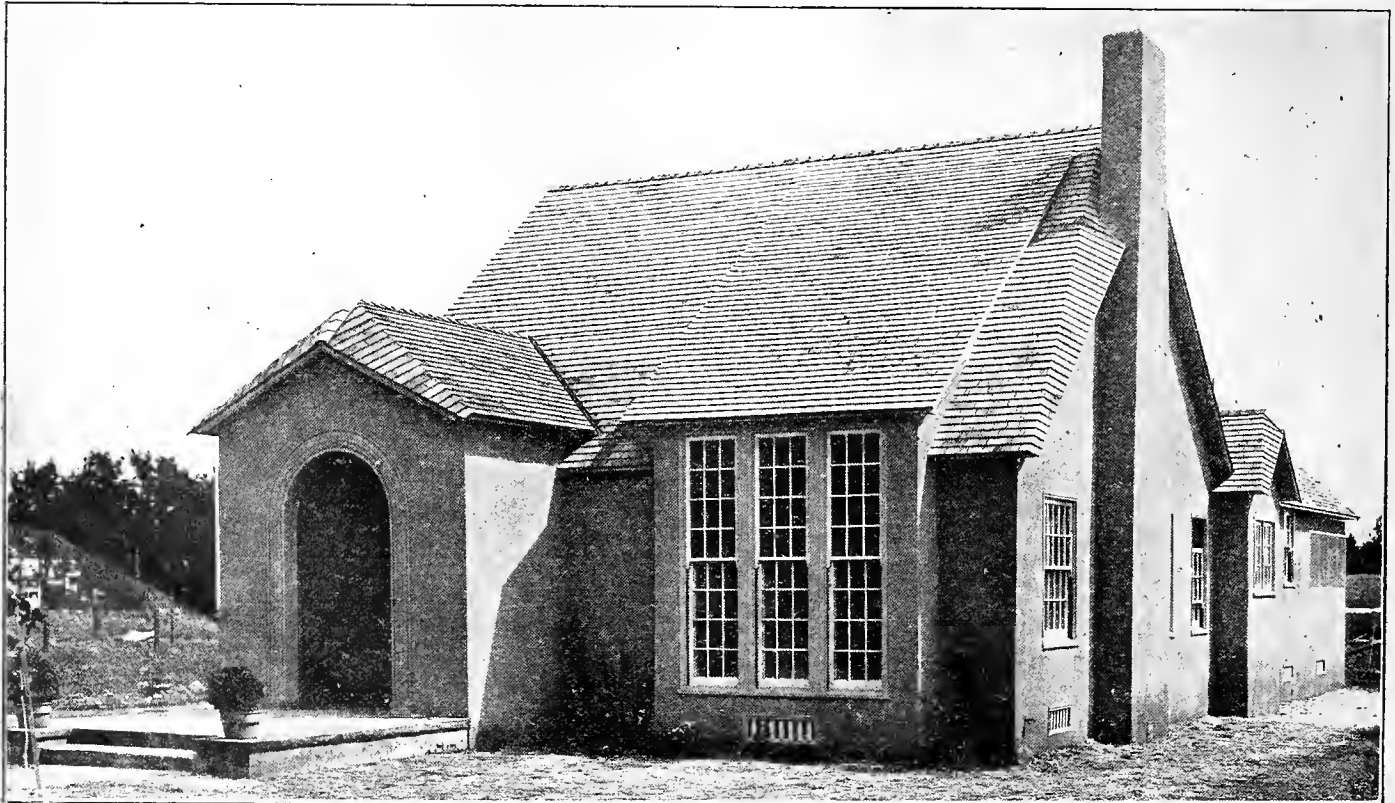
The "Pacific Gas and Electric"
Deserves some credit, too,
As well as the "Great Western Power"
And the contractor-dealer crew.

Just see the modern kitchen
With everything at hand
Clean and cool and convenient,
Electrically planned.

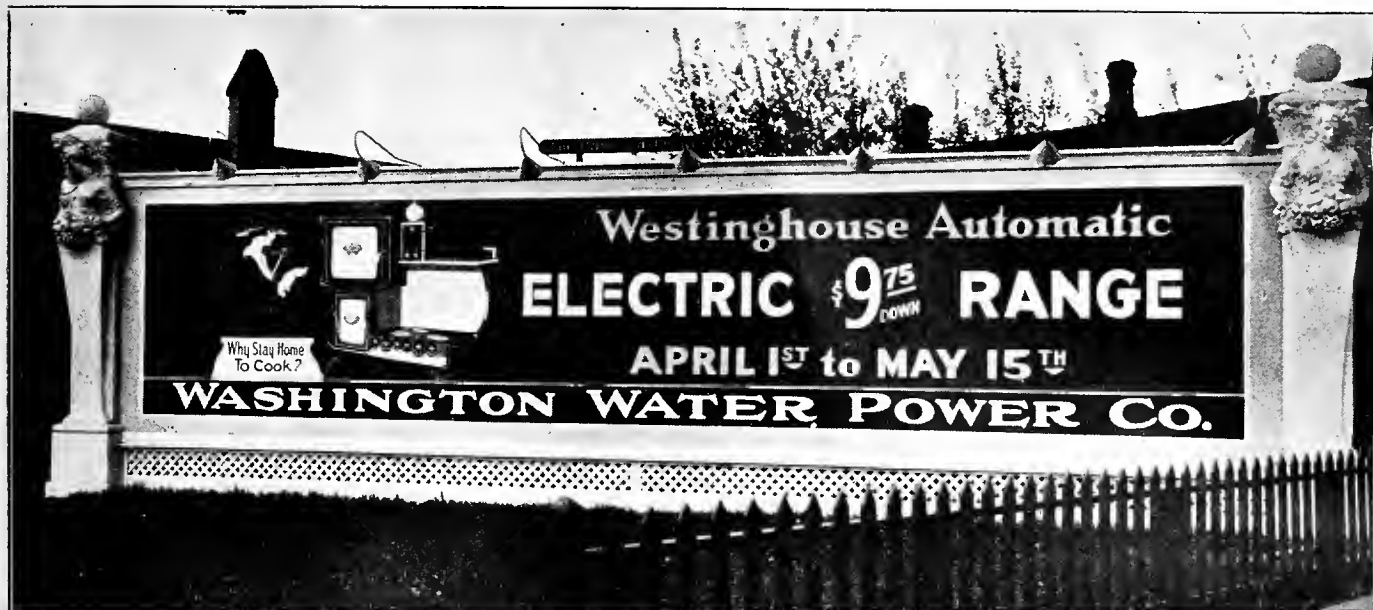
You'll find the hostess charming
And graciously inclined
To answer all your questions
Or what you have in mind.

Don't miss the "Hathaway" Cottage
Nor the one at 29th and T,
Nor yet the one at 910-9th,
This is "Better Homes" week, you see.

And when the week is ended,
As ended as this "pome,"
You will remember longest
The "Beautiful, Convenient, Artistic,
Modern, Indispensable, Charming—
The Bright Electric Home."



The house shown above was displayed by the electrical men of Sacramento to 8,500 people during "Better Homes Exposition" held there recently.



Bill boards of this character told the people of Spokane of the special range offer that was made by the Washington Water Power Company.

Doing the Sales Work of One Year in Six Weeks

Spokane Central Station Sells One-Tenth as Many Ranges During Campaign as It Had Sold in the Past Ten Years.

When the Washington Water Power Company of Spokane, Wash., decided to start on an electric range selling campaign, Lewis A. Lewis, sales manager of the company, hoped that between 150 and 200 ranges would be placed in the six weeks that the campaign was to run. Mr. Lewis considered the condition of the territory served by the company and found that in the last ten years 4,030 electric ranges had been put in service in Spokane and the "Inland Empire."

With the goal set as 200 ranges, for the period from April 1 to May 15, the commercial department of the Washington Water Power Company, in Spokane, and the district agents in the various cities served by the company, set to work. On May 14, at a banquet given by the Washington Electric Supply Company, distributor for the Westinghouse Electric & Manufacturing Company, it was announced that 300 ranges had been sold up to that time. Those in charge of the sales reported that full accounts had not been received, and on the day after the campaign had closed, full reports showed that 431 ranges had been sold in the six weeks.

In every case where a range was sold an electric water heater was also purchased by the customer. The total rating of the equipment was 7 kw. The success of the campaign can only be fully realized when it is known that from the equipment installed the Washington Water Power Company expects to receive \$39,000 additional revenue per year. The average price of the ranges and water heaters installed was \$249.75, and the total gross sales value of the equipment was \$107,000. To cut down the line extension costs, salesmen made it a point to notice the location of transformers and concentrated their efforts in the vicinity of these transformers. This also permitted the company to provide service with less delay.

The territory served by the Washington Water Power Company has a

population of 170,000 persons. In the city of Spokane there are 24,700 residential customers, and in the towns directly served, 7,500 residences receive power from this company. At the close of the sales campaign statistics showed that there were 2,583 electric ranges in service in Spokane, while 1,878 were installed in the towns directly served by the power company. These figures show that in the entire territory 13.9 per cent of the residential customers are using electric ranges. The ratio of range users to residential customers is higher in the outlying towns than it is in Spokane, the percentages being 10.5 for Spokane and 25 for the "Inland Empire" towns directly served.

The recent sales campaign showed that the six city salesmen and the four Electric Shop salesmen of the Washington Water Power Company sold 232

ranges in Spokane, while the twenty-five district agents in the towns of the "Inland Empire" placed 199 ranges and water heaters. Three hundred and ninety-three of the 431 ranges sold were Westinghouse Electric & Manufacturing Company products, types 2-19B and 3-19B. Thirty-eight ranges of other standard makes were also installed during the campaign.

The principal features of the campaign were the advertising copy and the low initial payment plan used. Two different ideas were used in preparing the advertising campaign. In Spokane, the only preliminary advertising was a blind advertisement which appeared in the local papers one week prior to the campaign. The figures "\$9.75" were enclosed in a circle and were surrounded by white space in a 10-in. advertisement. The day after the sale was opened inserts were enclosed in all residential bills sent out by the power company. Illuminated sign boards were also used to carry the message of the campaign to the people of Spokane.

RULES GOVERNING WESTINGHOUSE PRIZE BREAD BAKING CONTEST

1. Each purchaser of a Westinghouse Electric Range between April 1st and May 15th, (inc.) 1923, will be eligible to enter contest.
2. One loaf of bread which has been baked in the range you purchased to be the entry.
3. Before 2:00 P. M. on June 9th, 1923, your entry must be delivered to the Electric Kitchen in the general offices of The Washington Water Power Company.
4. Presentation of this card will entitle you to make your entry.
5. To the purchaser who enters the best loaf of bread based upon texture, color, flavor and shape, will be given a receipt marked "PAID IN FULL" for the Westinghouse Electric Range and Water Heater installed that you purchased during the period from April 1st to May 15th, inc., 1923.
6. The following authorities on bread have agreed to serve as judges:

Carl Siegle—Model Bakery

W. E. Rockhill, Supt.—Spokane Bakery Co.

T. R. James, Chemist—Sperry Flour Co.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY.

A reproduction of the reverse side of the card entitling persons, who purchased a Westinghouse range during the campaign, to participate in the bread-baking contest. As the card states, the winner was given the range and hot water heater free. Purchaser's name was on the card face.

SALE OPENS April 1 - Closes May 15

Westinghouse Automatic Electric Range—With Water Heater

THE Westinghouse Electric and Manufacturing Co. now present to all our customers using electric service a spectacular super-sale of Westinghouse Automatic Electric Ranges. This sale offers the following advantages—

- 1—Range and water heater installed at a reduced price.
- 2—Lowest down payment we have ever offered.
- 3—Free with each range, an aluminum four-piece Cloverleaf cooking set.
- 4—An opportunity to enter bread baking contest at close of sale. First prize to be a receipt marked "Paid in Full" for the range you purchased. In other words an opportunity to get your range absolutely free.

Phone, Call or Write—

THE WASHINGTON WATER POWER COMPANY

"Cook by Wire—Instead of Fire"

This insert was mailed out with all residential power bills after April 2. The dates were printed in red, thus drawing attention to the fact that purchasers should act immediately to secure benefits.

These were located at conspicuous places on the most traveled car lines. After April 1, newspaper advertising was run in the three local papers. In 31 advertisements, 2,011 in. of space was used.

No preliminary advertising was done by the company in the towns of the "Inland Empire." A campaign, consisting of window cards, slides for moving picture shows and advertising in local papers was started in these towns on April 1. During the six weeks' period a Westinghouse range demonstrator visited the fifteen principal district offices, otherwise no intensive work was done in these towns. From figures secured after the campaign, it was determined that the net cost of advertising for these country towns was not over \$3 per range sold there. From the most conservative standpoint, it can be stated that in proportion to the magnitude of the results, the advertising was remarkably small in volume and low in expense.

The payment plan adopted by the Washington Water Power Company called for an initial outlay of \$9.75, hence the blind advertisement carrying these figures. Monthly payments were set at \$10 as a minimum. This easy payment plan was undoubtedly in a large way responsible for the success of the campaign. Other special inducements included the 4-piece "cloverleaf" cooking set that was given free with each range purchased and the opportunity to enter the bread baking contest. The winner of this contest was given her range and water heater free. The contest was held a month after the campaign closed in order that entrants might have an opportunity to become accustomed to their ranges before the contest opened. The contest was open only to those persons who purchased a Westinghouse range and water heater during the sale period. The winner was not even required to pay installation charges on the equipment.

In speaking of the results of the campaign, at the banquet given by the Washington Electric Supply Company, Mr. Lewis said that the success was due not only to the high caliber of the salesmen, but also to the cooperation of the other departments of his company, particularly the service, line and ac-

counting departments. Mr. Lewis claimed that if it had not been for the combined work of all of the departments of the company the campaign could not have been the success it was.

The results achieved by the Washington Water Power Company are truly remarkable. In six weeks the company placed one-tenth as many ranges as had been placed in the past ten years. The costs to the company were not exorbitant and the results in increased load will cover up the sales costs in a short time.

CATERING TO THE KATIES

By Joe Osier.

What are you, as an up-to-date Contractor-Dealer, doing to interest the frails, the Fannies and the Florences in your proposition?

Which proposition includes selling and installing the latest in flossy fixtures.

Are you putting out pelf in advertising copy that will interest them? Are you maintaining a window display that will make 'em stop, look and let go? Are you making a play for their favor

And their lunch card's loose kale, or are you just hanging tuff, waiting and

Wondering why you, too, cannot garner a little grease?

If you are engaged in doing the latter, Brother, take my word for it, you might as well hang up the "For Rent" sign and go fishing, because—

It is a fact that the fish—in the water—show no partiality when it comes to throwing a mean lip over the morning meal.

Unlike fastidious purchasers of electrical merchandise, a hungry fish does not have to have the idea sold to him. He, I'm of the opinion, takes his fly where he finds it, and—

Recks not of the morrow—but—

Men's sparring partners, as a rule, want what they want, and—

Usually get it—providing the checks in Papa's bank book hold out, and—

Seeing that most any Elmer is willing for his Ella to drive the family chariot—buy most of the meals at the delicatessen, and—

Build the fires—



He is also not adverse to permitting her to select the fixtures and the fumadiddles which make up—

A happy, snappy home.

Therefore, friends, conceding that I have talked with a straight tongue, why would it not be the proper caper to unleash a few ideas—put them into practice, and see if you cannot snag some of this Wednesday and Saturday afternoon shopping business which is swirling by the main entrance.

Officially, it is reported, women love to shop, and—it is also rumored that—

Patience and a mulberry leaf will make a silk gown—therefore, admitting, for the sake of argument, that this report and rumor can be verified—

Why not add two and two together, and crochet some over-the-counter business?

If women love to shop, foster that love and make your store the trysting place for all the lovely shoppers who have—

A yearning for things electrical. Go ahead! Make your advances—press your suit with an electric iron, and lead them to—

The jolly old cash register.

You know, I am in hearty accord with the Bird who authored these lines:

"Thatch your roof before rainy weather; dig your well before you become parched with thirst." He knew what he was talking about and I'll wager he—

Salted away many seeds before he was called in, and—

Right now, I can see no particular reason why every man in the business of selling and installing electrical

Appliances, appurtenances—and apparatus—

Cannot take the tip. Those who do will win, and, by the same token, those who don't—

Will walk, and, most likely, tote a sack of tools in the bargain.

Announce Winners in June Bride Window Display Contest

Reports indicate that the second annual June Bride Week sponsored by the California Electrical Cooperative Campaign as a means of stimulating the sale of appliances, achieved excellent results in all parts of California. While the number of dealers to take advantage of the free window display and advertising material prepared by the Campaign was proportionately small, the benefits derived by those who did so were well worth while.

Excellent results are reported from southern California where the Southern California Edison Company staged an advertising campaign to tie in with the June Bride idea in all parts of the territory this central station serves.

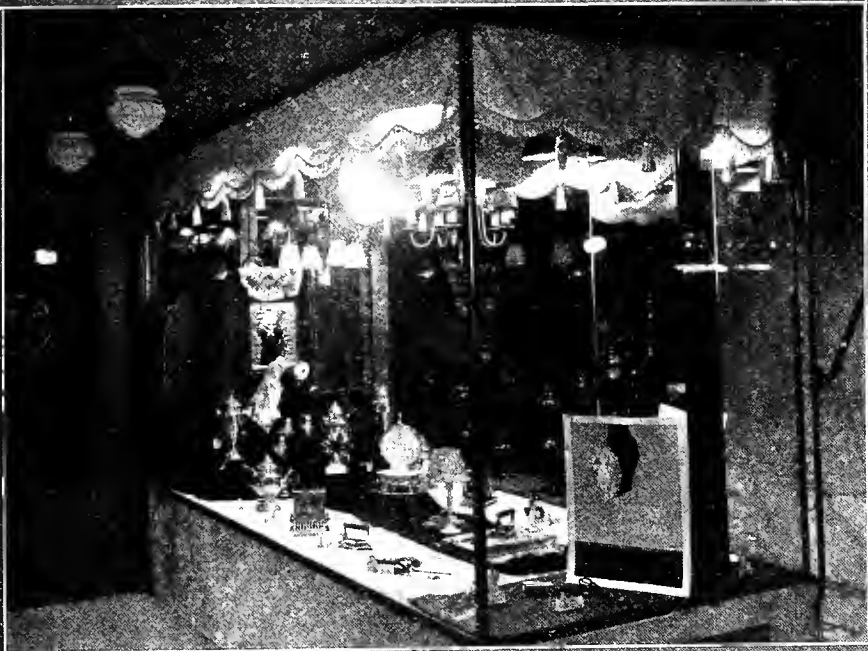
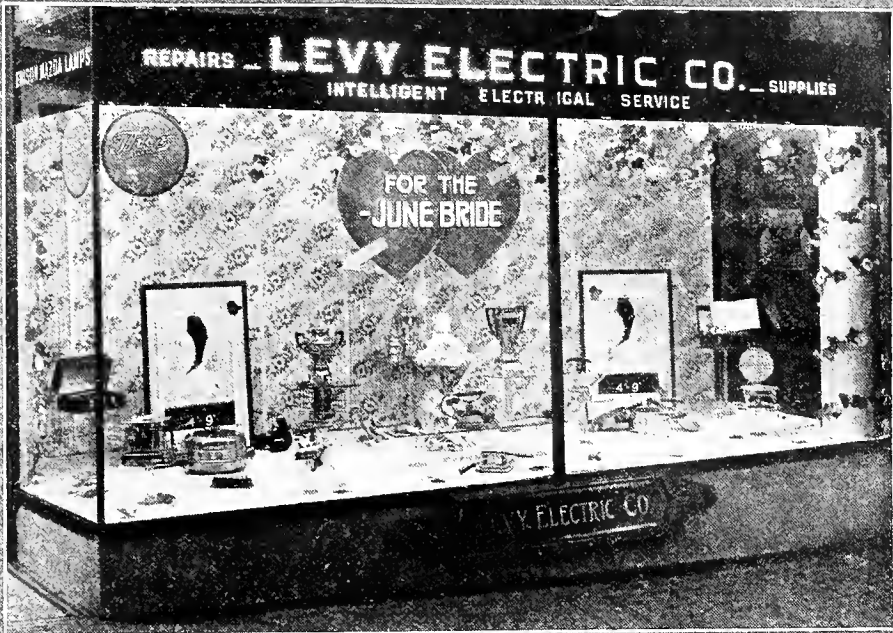
The prize winners in the window display contest conducted by the Campaign are as follows:

First: Thomas Day Company, Oakland. Window decorated by Mrs. Kathryn M. Tefft.

Second: Levy Electric Company, San Francisco. Window decorated by F. Ingel, Jr.

Third: Kenyon Electric Company, Oakland. Window decorated by R. E. Kenyon.

Pictures of the prize winning windows are reproduced on the following page.



AT the top is the window of the Levy Electric Company, San Francisco, which won second prize in the June Bride Week Contest. At the left is the window of the Kenyon Electric Company, Oakland, third prize winner, while at the bottom is the display of the Thomas Day Company, Oakland, which won first prize.



The Service Station Is a Factor in Merchandising

Show Room of Edison Electric Appliance Company at Salt Lake City Is Practical Aid to Jobbers and Dealers

Manufacturers have recognized that their success is based largely on the service that they render, but the organization of service stations has been a comparatively recent development. The furnishing of sales promotion material and the placing of national advertising have always been considered as part of the manufacturer's service, but it has not been until recently that repair stations have been established, in the larger centers, to supplement the other activities. The general rule has been that where service stations were maintained, they were located in some loft building in a remote section of the city. Thus, these stations rendered a valuable service, in that they saved considerable time for the dealer with appliances needing repair, but they added little or nothing toward a solution of the larger problem of local merchandising.

One of the most up-to-date and completely equipped of the new class of service stations is that of the Edison Electric Appliance Company, located at Salt Lake City, Utah. Through the efforts of B. E. Rowley, district sales manager of the Rocky Mountain territory, the new type of service station was located in Salt Lake City. Mr. Rowley, seeing the station in a different light, induced his company to establish quarters in a ground-floor location on one of the main streets of the city. In that location a modern electrical store was opened from which no retail selling is done, but one that is in all other particulars a most attractive local dealer's store.

The station is located at 60 East First South Street and is under the supervision of John Montgomery. The office is located in the rear of the mezzanine floor and store room for equipment and repair parts occupies the basement of the building. A display window in the front of the store adds appreciably to the value of the location.

Through this service station the manufacturer is able to render a real help to the dealer by showing him what an attractive and well laid out store can do. This activity permits the manufacturer to supplement the impersonal newspaper and magazine advertising campaigns with the more direct appeal of good window displays and well arranged stock exhibits. The local dealer is also given another show room to take prospective customers through, as the service station display is at the disposal of any dealer in the manufacturer's line.

Because ideas of good sales methods have been brought forth in the service station, the standards of store arrangement and window displays have been raised considerably in the territory served by the station. The ideas put forward by the manufacturer's establishment have usually been put into actual use at the Salt Lake City station, and in this way practical tests have been made of their value before the dealers try them out for themselves.

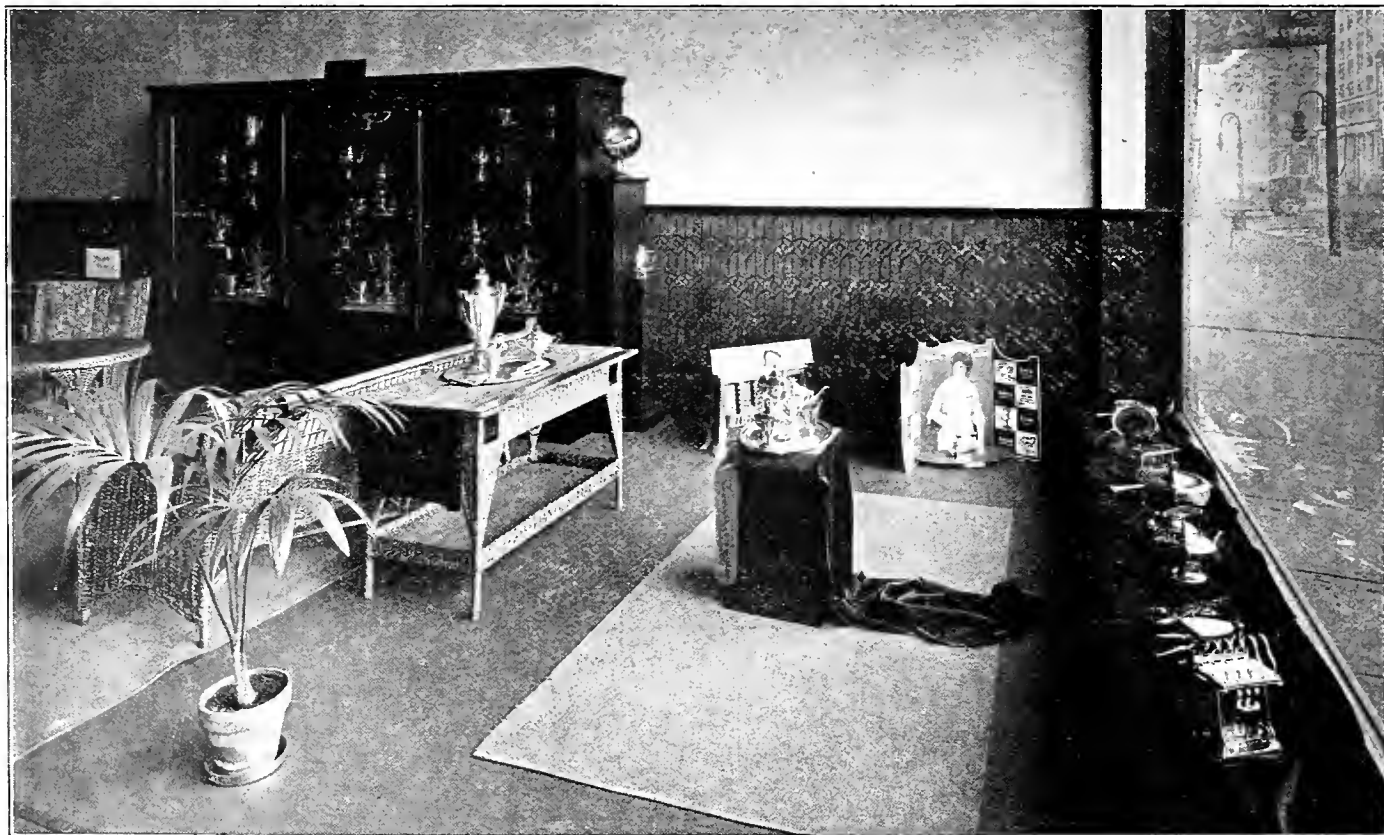
One of these suggestions covers the use of a portable stage setting which can be used to wall off the window space for a special room display, when that is desired. These walls can be repapered

without great expense, and thus form an effective background for kitchen, parlor or bathroom, as they are needed. Since the walls are portable it is possible to remove them entirely from the display window when full light is desired in the interior of the store. An entirely new aspect is presented when the background is removed. The frames are light enough to permit them to be transported from place to place with little trouble and this enables the manufacturer to use them at county fairs or electrical shows as backgrounds for displays.

Linoleum has been used as the floor covering for this display. It has been found that the linoleum is both attractive and economical and is easily kept clean. A design has been chosen which is suitable for a kitchen floor and which with the addition of rugs is appropriate as floor covering for a sitting room display. The rugs used can be readily transported with the rest of the equipment.

In arranging the interior of the store, considerable attention was paid to making it a place which would be suitable for dealers to use as a supplementary sales room. An attractive sitting room with wicker furniture and a soft rug under foot is located to the rear of the show window. A writing desk is provided for customers who have any business to conduct in the store. Smaller appliances are grouped in a well lighted counter case, which, together with a wall case of special design, partially closes this "customer's room" off from the rest of the store.

Store managers have found that in the ordinary wall case it has been difficult to make the prospect's eye focus on any one object displayed there. Ob-



Interior view of the service station of the Edison Electric Appliance Company at Salt Lake City, Utah. Note how each appliance displayed in the wall case stands out from the others, because of the staggered arrangement of the shelves. The chairs and table at the left are for customers.



Exterior of the store occupied by the Edison Electric Appliance Company service station at Salt Lake City, Utah. When it is desirable to have the interior of the store visible from the street the portable background of the display may be removed. Daylight is admitted to the store this way.

jects placed on long rows of shelves present a confused mass to the eye, as it is a psychological fact that the eye tends to follow lines. The result is that the attention wanders from one object to another, with no particular place to rest. Mr. Rowley recognized this fact and had the wall case for the service station built with staggered shelves, so that each appliance is on a separate level. Each appliance is thus set off from the others in the case, instead of being one in a long row of devices. The customer's eye is attracted to a coffee pot or chafing dish and the attention focuses on the single object.

Larger equipment is displayed in the rear of the store. There samples of each of the electric ranges, ovens, etc., that are manufactured by the company, are placed along the wall. To assist dealers who use the salesroom, labels stating the size and purpose of each device are attached to each piece of equipment. The dealer can thus give the customers full information without calling on the manufacturer's salesman for this. In addition, the visitor can find out himself just what each device is intended for, thus gaining an idea of the variety of equipment manufactured by the company.

The basement of the store has been devoted to the repair and parts departments. A counter for handling repair orders is located at the foot of the stairs and behind this tiers of bins are provided for holding repair parts and the smaller equipment. This storeroom is meant to take care of local emergencies, but is not the storehouse for handling the wholesale business of the company. The arrangement is designed to

show the retail merchant how a complete stock may be carried in the smallest space with the greatest convenience. Dealers who have seen the layout have quickly seen the advantages and in most cases have brought their stocks up to the standard of the service station.

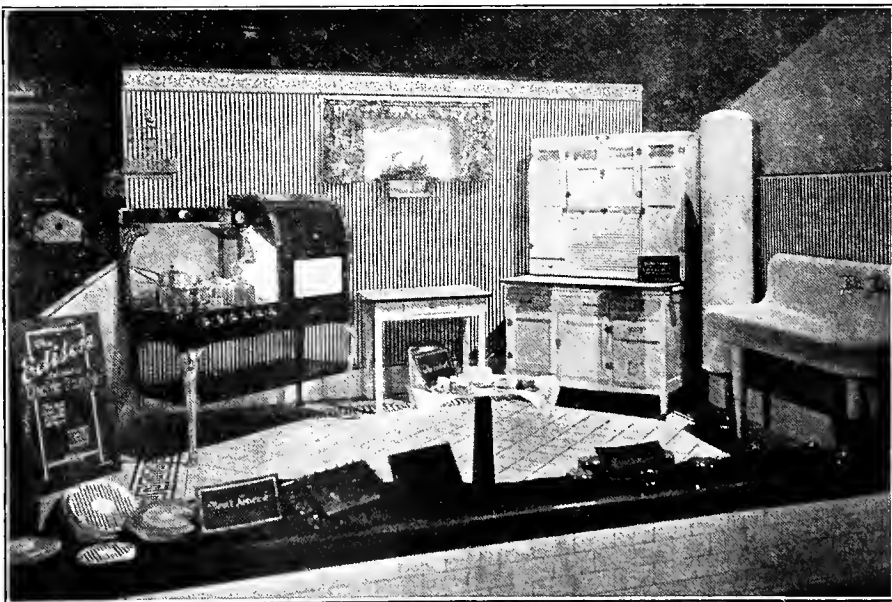
Mr. Rowley's idea in laying out the store has been to provide a place where the jobber or dealer may bring in customers and find a complete stock available for demonstration purposes. The primary function of the establishment is to supplement the merchandising

service of the dealer and to put the manufacturer in closer personal touch with the distributing agencies of the electrical industry. The station provides the manufacturer with a force which can be used as a direct follow-up to his printed sales service, through active personal assistance in the case of the individual customer.

The service station has supplemented this personal service that has brought a considerable addition to the amount of local business, with suggestions for special sales campaigns on various appliances. It has also been active in pushing the convenience outlet idea in the entire territory that it serves. In a recent campaign on electric irons, the manager of the station organized the Boy Scouts of Salt Lake City into a sales force to canvass the homes. The retail end of the business went through the hands of the local dealers.

The success of the service station idea has been firmly tested in Salt Lake. The organization there has grown from one employing two people to one of the most important of the Edison Electric Appliance Company's chain of service stations. The volume of business clearing through the office now furnishes employment for four field salesmen, two range specialists, two repair men, a district sales manager, a station manager, a shipping clerk and two stenographers. Repair and service work is done for the states of Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming.

To test the soundness of the idea, a very careful record has been kept of all expenses incident to the service station. It cannot be denied that the service station has built up a great amount of good will for the manufacturer and has brought the merchandising factors closer together, but also it has been found to be a financial success. The returns from the district show ample justification for the continuance of the policy of furnishing this service to the merchandising factors of the industry. The manufacturer will undoubtedly make this a permanent contribution which will react to the benefit of the entire electrical industry in the territory.



A typical window display of the service station, showing how the papered background may be used to form an appropriate setting for a kitchen display. Only a slight change is necessary to make the setting represent any other room in the house. The linoleum is adaptable to other displays.

INDUSTRIAL NEWS



O'Shaughnessy Dam Is Formally Dedicated by Officials

O'Shaughnessy Dam, the City of San Francisco's new dam for impounding water for the city supply, and the Hetch Hetchy reservoir, were dedicated on July 7. A group of San Francisco citizens, guests of the Board of Public Works, were present at the dedication.

W. H. Wattis, president of the Utah Construction Company, formally delivered the completed structure to the city officials. T. A. Reardon, president of the Board of Public Works, accepted the dam for the board, and Mayor James Rolph, Jr. dedicated the dam on behalf of the people of San Francisco.

M. M. O'Shaughnessy, city engineer of San Francisco, for whom the dam was named, briefly outlined the less technical features of the structure. Mr. O'Shaughnessy has been in direct charge of the erection of the dam which was started in 1914.

The new concrete structure is built in the shape of an arc, with a 700-ft. radius. The cost of the dam and reservoir was \$6,647,356.34.

The storage capacity of the reservoir behind the dam is 66,000,000,000 gal., and water is supplied the reservoir from a drainage area of 294,000 acres.

The dam is one of the largest masonry dams in the world, as it is 298 ft. thick at the bottom, and the foundation is 114 ft. below the stream bed. The top of the dam is 341 ft. above the stream bed, with a crest 600 ft. long. Tunnels and aqueducts will be used to transport the water to San Francisco.

Municipal Utility District to Be Formed by Sacramento

Embarkation on a municipal water and power development scheme by the City of Sacramento, Calif., was sanctioned by the voters of that city, on July 2, 1923, when they voted for the creation of the Sacramento Municipal Utility District, at the same time electing five directors to proceed with the preliminary steps necessary under the terms of the newly created municipal utility district act. The vote on the measure was 6,378 to 978. It is significant that the total vote was less than 7,700 out of a total registration of approximately 36,000.

Under the terms of the act, the five directors will immediately perfect an organization, appointing a general manager, a treasurer and an attorney who will hold office at the will of the board and whose salaries will be fixed by that organization.

If the suggestion of H. C. Bottorff, city manager of Sacramento, is carried out, the board will immediately ask the California State Railroad Commission

to make a detailed appraisal of the distribution systems of the Great Western Power Company and the Pacific Gas & Electric Company within the district and start condemnation proceedings to acquire these properties. In the meantime the board will prepare the final recommendations from the reports of the engineers who have been investigating the project. These, together with a bond issue to cover the cost of the project, will be submitted to the voters for final approval before the end of the year.

The project, which, it is estimated, will cost approximately \$8,000,000, calls for the development of a maximum of 150,000 hp. from the waters of Silver Creek, a tributary of the American River. The two main reservoirs will be at Union Valley, on the main fork of Silver Creek, and at Ice House, on the south fork. The dam at the former point will be 302 ft. high, and at the latter, 138 ft. high. The ultimate impounding capacity of the reservoirs will be 210,000 acre-feet for this watershed, which has an area of approximately 191 sq. mi.

Of the \$8,000,000 to be expended on the initial development, \$4,000,000 will be spent on the reservoirs, dams and power houses, while the remaining \$4,000,000 will be spent on the acquisition of the distribution systems of the two utilities within the corporate limits of the district.

It is understood that the Silver Creek project, upon which the city is planning to embark, was investigated by power company engineers several years ago and that a report was made at that time indicating that the project would not be economically feasible for at least 50 years owing to the high initial cost of the development.

However, before actual construction work can be started by the city, the voters must authorize \$8,000,000 in bonds. While the vote on the formation of the district was apparently overwhelmingly in favor of the project, it is pointed out that but slightly more than 20 per cent of the registered voters were sufficiently interested in the project to go to the polls. It is believed that considerably more interest will be aroused when the question of expending money comes before the voters.

The Los Angeles Gas & Electric Corporation celebrated its fifty-sixth anniversary on June 28. On the original staff of the company at the time it was organized were James Hagan, George J. Clark, John Goller, Wallace Woodworth and William H. Perry. The business began with a capital of \$35,000. The plants and equipment are now appraised at \$17,000,000.

Substation Equipment Purchased by Vancouver Company

The British Columbia Electric Railway Company has let the contract for one 6,000-kva. synchronous condenser, with a 1,000-kw. d.c. generator attached and one 3,750-kva. synchronous condenser, also with 1000-kw. generator attached, to the Canadian General Electric Company. This apparatus, with the necessary switchboard devices, will cost \$157,000. The former will be placed in the Main Street substation, and the latter in the Burnaby substation. Correction of power factor is the purpose of the new equipment.

This company plans to erect, at an early date, a 6,000-kva. substation at Port Moody, to replace small transformer stations at Port Moody and Coquitlam, which were destroyed by fire. Step-down transformers, from 34,600 volts to 12,000 volts, will be installed. Current will be delivered direct from the Lake Buntzen hydroelectric plants. The cost will be \$55,000.

A new bank of three 500-kva. transformers will be installed in the Cloverdale substation of the British Columbia Electric Railway Company, replacing a similar number of an old air-blast type. This equipment will cost \$14,000.

Hydroelectric Power Project in Oregon Issued Permit

A permit has been issued by the Oregon State Engineer, to A. D. Gardner, to appropriate 1,000 sec.-ft. of water for power development from the North Santiam River, near Stayton, Ore. Mr. Gardner, according to present plans, will develop a total of 13,636 hp. at four points between Mehama and the present development at Stayton, at an estimated cost of \$250,000.

It is proposed to use the power for general commercial purposes and to supply additional power to the industries of Stayton, which are now using 1,500 hp. Any surplus power that may be developed will be sold at wholesale. The accessibility to Salem, Jefferson, Albany and other towns in the central Willamette Valley makes this new development of importance.

A proposal to erect a large hydroelectric plant in the mountains near Colima, Mexico, has been announced by Lawrence C. Morley and associates. Mr. Morley has applied to the Mexican Government for a concession to construct the proposed plant. It is stated that the group of men intend to develop about one hundred thousand horsepower and that they plan to erect transmission lines leading to Colima, Manzanillo and other towns and mining districts.

Franchise Expiration Awaited by Colorado Springs Men

Since the defeat of the franchise sought by the Colorado Springs Light, Heat & Power Company over a month ago, there have been no new developments other than the establishment of a "watchful waiting" policy on the part of both the city and the utility.

The old, or Jackson, franchise, as it was called, expires Sept. 8, and until that time the central station has an official status. Whether the city council will continue its passive policy until that time, or even afterwards, thus allowing the company to continue operation as previously, is not known.

Even with the marked preponderance of sentiment against the renewal of the franchise, the possibility of municipal operation of the utility is no greater, if not less, than it was previous to the election. This is mainly attributed to the convincing report submitted by General George W. Goethals, after making a thorough study of the situation, and in which the noted engineer made conclusions diametrically opposed to a number of those advanced by the expert serving for the city.

With no alternative proposition offered as yet by the city administration, and with the possibility of a receiver being designated to take over the company, years of litigation may result, in the opinion of a number of Western utility operators.

J. D. Ross, superintendent of the Seattle municipal lighting system, has been commissioned by the Colorado Springs authorities to conduct a survey in that district, with the view to the construction of a city-owned hydroelectric plant. Mr. Ross will spend several weeks there.

Completely Electrified Hospital Planned for San Diego

Electrically, the new St. Josephs Hospital, in San Diego, Calif., bids for which have been received, will be one of the finest equipped institutions of its kind in the country. Such were the announced intentions given to the public recently by L. E. Loveless, designer of the institution.

The six-story hospital, with its attendant power house, will occupy a five-acre site about 600 yd. north of the present hospital. It is to be erected at a cost of approximately \$500,000. The main structure will be 260x44 ft., and it is planned, will be flanked eventually on either side by wings, 100x42 ft. Spanish Mission style of architecture will be employed, with stucco finish ornamented with artificial stone. Construction is to be Class A, reinforced concrete, with tile filler walls.

Some of the electrical features of the new hospital will be as follows: Each room, besides having individual laboratory and clothes closet, will be wired with a special power outlet for the use of electrical appliances. It will also have an electric silent signal system, private telephone, and will be connected with a checking annunciator in the office of the superintendent of nurses on the main floor.

Portable X-Ray equipment, capable of being used in every room in the building, will be one of the special features. A complete electro-cardiograph

system, with stations on the various floors, will be installed.

The basement of the building will contain an electric refrigerating system, including an ice-making machine. An automatic auxiliary emergency lighting system, operating from storage batteries in case of power shut-off on the central station lines from any cause, will also be located in the basement.

Electric lighting of all rooms and departments is to be given especial care. In the obstetric department, on the fourth floor, and the operating rooms on the fifth floor, lighting will be carefully considered. A special X-Ray operating suite is included in the plans.

Food will be prepared in the main floor kitchens and delivered by automatic dumb waiter to each of the floors. A high-speed elevator service will serve all floors, with an automatic electric bed elevator to serve the surgical department.

In other departments, such as the thoroughly equipped laundry, vacuum cleaning apparatus, examination rooms, dispensary, nurse's home, kitchen and cafeteria, shops, etc., and power house, electricity will also be utilized.

Washington WaterPowerCompany Makes Plant Additions

Improvements costing approximately \$35,000 have recently been completed by the Washington Water Power Company of Spokane, Wash. A balancing set for the direct current system has been installed at the Post Street substation in Spokane. The set will replace an obsolete waterwheel balancing set which has been in use in the power station under the Monroe Street bridge. The new set was installed at a cost of about \$10,000.

To give duplicate service to the industrial section of the east end of Spokane, the company has recently completed a \$25,000 substation at the corner of Havana and Broadway. Recent development in this section of the city has made the addition to the distribution system advisable.

The concrete foundation for the new 23,500-hp. unit at the Long Lake plant of the company has been laid and the waterwheel and generator will arrive the latter part of the summer. This is the fourth unit to be installed at the Long Lake plant. The company has also started work on the foundation for a new unit at the Similkameen River, near Oroville, Wash. A 2,150-hp. unit will be installed there later in the fall.

Masonic Rites Read at Funeral of John A. Britton

Funeral services for John A. Britton, vice-president and general manager of the Pacific Gas & Electric Company, were held in the San Francisco Masonic Temple, Van Ness and Market Street, San Francisco, on June 3. The ritualistic ceremonies were conducted by Oakland Lodge, No. 188, of which Mr. Britton was Past Master.

Officers and directors of civic, business and other organizations were present at the funeral. Groups represented the leading organizations of the city. The pallbearers, consisting of Mr. Britton's older associates, were: Charles L. Barrett, Albert C. Beck, Philip E. Bowles, Charles W. Conlisk, Wigginton E. Creed, Charles P. Cutten, Paul F. Downing, Carl E. Heise, George Kirk, Frank A. Leach, Jr., Richard E. Malone and Joseph S. Worthington.

All of the members of the Pacific Service Employees' Association stood for three minutes with bared heads, at the hour of the ceremony.

Annual Electric Cooking School Held in Salt Lake City

The annual electric cooking school, conducted by the Salt Lake Telegram, was held in Salt Lake City, Utah, the week beginning June 11. Miss Edith Cliff, domestic science expert and demonstrator, gave lectures each day, and by practical demonstrations impressed the many hundreds of housewives who attended with the innumerable advantages of cooking electrically.

Miss Cliff featured various recipes and menus, and explained the planning of meals. During the week a large number of prizes were given to successful contestants in various cooking contests.

In addition to exhibits and advertising features displayed by several electrical firms, several merchants entered exhibits and booths at the school. To tie in with this advertising there were many items in the news columns of the Telegram covering the advantages of more extensive use of electricity in the home.

The attendance at each daily session was large, and it was noted that a keener interest than ever was shown by the spectators. Miss Cliff introduced many new ideas in the art of cooking electrically. The school was conducted in the ball room of the Hotel Utah, and was the fourth annual event of this kind.



The cooking school held in Salt Lake City was conducted in the ball room of the Hotel Utah. A general idea of the attendance may be obtained from the illustration above.

Transmission Line Certificate Is Granted Idaho Company

The Public Utilities Commission of Idaho has recently canceled a certificate of convenience and necessity, covering a transmission line in Lincoln County, Idaho, granted to the Wood River Power Company, in March, 1922, and has at the same time granted to the Idaho Power Company a certificate covering the transmission line. The action on the part of the commission comes after a request made by both companies that the certificate be transferred to the larger company.

It is the intent to reconstruct the line for 44,000-volt operation, and now that the certificate has been granted to the Idaho Power Company, that company will stand the costs of construction work. The line runs from the town of Shoshone to the town of Richfield. Power will be wholesaled to the Wood River Power Company at Richfield.

Frank A. Leach, Jr., to Succeed the Late John A. Britton

Frank A. Leach, Jr., former manager of the East Bay division of the Pacific Gas & Electric Company, and more recently vice-president in charge of public relations and service, has been named vice-president and general manager of the company, to fill the vacancy caused by the death of John A. Britton.



Frank A. Leach, Jr.

The appointment was made at a meeting of the board of directors of the company, held July 12, 1923.

The new general manager of "Pacific Service" is an Oakland man, having resided there since his early youth. He began his early business training on the Oakland Enquirer, a newspaper owned by his father, Frank A. Leach, Sr., former superintendent of the San Francisco mint and later director of the mint at Washington, D. C.

He entered the public utility service 25 years ago in the employ of the Oakland Gas Light & Heat Company, of which the late John A. Britton was president and manager. Upon Mr. Britton's acceptance of the presidency of the California Gas & Electric Corporation, of which the Oakland Gas Light & Heat Company was a subsidiary, Mr. Leach was appointed to succeed him as manager of that utility and also the Berkeley Electric Lighting Company. Upon the organization of the Pacific Gas & Electric Company, in 1905, Mr. Leach was made manager of the East Bay division. Three years ago

he was called to the head office in San Francisco as vice-president in charge of public relations and service.

The following tribute to his qualities is given by Wigginton E. Creed, president of the company:

"Mr. Leach is the logical successor to John A. Britton, who was for so many years in responsible charge of the operations of the company. Mr. Leach has come up through the operating ranks of the company in both gas and electric divisions, with twenty-five years of service to his credit."

Mr. Leach is a member of the San Francisco Chamber of Commerce, the San Francisco Engineers' Club, the National Electric Light Association, and the Illuminating Engineering Society. He was elected second vice-president of the Pacific Coast Electrical Association, at the last convention of that organization.

Transmission Line Survey Being Made in Southern Oregon

Survey work on the transmission line of The California Oregon Power Company, between Roseburg, Ore., and Dixonville, has been started. As soon as the route is mapped out rights-of-way will be secured and actual construction will be started as soon as possible.

The line will connect with the 66,000-volt transmission line between Prospect and Eugene. It is probable that a substation will be erected at Dixonville and another at Roseburg. It is expected that construction on the line will be completed by Sept. 1.

Six miles of line will be necessary to tie-in the system of the Douglas County Light & Water Company with The California Oregon Power Company system. The former company was recently purchased by the larger concern, and the new line is being built to connect the two parts of the power company's system. When this line is completed, the utility will be prepared to supply Roseburg and the Umpquah Valley with all of the power that is needed.

Contract for Transmission Line to Britannia Beach Let

Contract for the building of the 34,600-volt line, from West Vancouver, B. C., to Britannia Beach, a distance of 30 miles, has been awarded by the British Columbia Electric Railway Company to D. Cummings, the price being \$72,000. This amount covers poles, crossarms and labor only, the company supplying cable and insulators. Seven-strand aluminum cable will be used with steel core. The additional cost of cable and insulators will be \$56,000. A copper-covered telephone circuit will be included.

The reason for using aluminum cable was to reduce the number of poles necessary, owing to the rough country on the route. Altogether, 260 poles will be used. The longest span will be 1,000 ft., with 500 ft. as the minimum. The highest altitude reached by the line will be 1,400 ft., although the ends will be at sea level.

Clearing for the line was recently completed at a cost of \$45,000. The British Columbia Electric Railway Company will use the new line to supply the Britannia Mining & Smelting Company with 4,500 hp.

San Francisco Body Favors Sale of Hetch-Hetchy Power

The board of governors of the Civic League of Improvement Clubs and Associations of San Francisco has gone on record as favoring the sale of power generated at Hetch-Hetchy to a private corporation, at the power house. The board ignored the majority report of a special committee formed to investigate the matter and voted to adopt the minority recommendation.

The supporters of the minority report stated that it would be difficult for the city to raise enough money to either purchase or erect a distributing system and that in addition some provision for stand-by service would have to be made if the city were to distribute this power. M. M. O'Shaughnessy, city engineer of San Francisco, has stated that the city's Moccasin Creek power plant, as the structure below the Hetch-Hetchy reservoir is known, will be ready to deliver power in the fall of 1924. The minority report also states that the city could not possibly be ready to distribute power by that time. The new project will develop approximately 52,000 hp. when the first unit is installed.

No action has been taken by the Board of Supervisors of San Francisco up to the present time. Three proposals have been offered. The first is to sell the power in a block to a private corporation at the power house, the second provides for the city to have a private corporation act as its agent in distributing the power, and the third calls for the city to distribute the power directly.

New Jobbing House is Organized in Oakland, Calif.

Organization of a new electrical supply jobbing house, in Oakland, Calif., to be known as the Electrical Supply Company, has been perfected by Edd. N. Watkins and Lloyd R. Hanlon. The headquarters of the firm have been established at 404 Eleventh Street.

Both men are well known in the electrical industry on the Pacific Coast. Mr. Hanlon has been connected with the sales department of Alexander & Lavenson, San Francisco jobbers, for the past five years. Mr. Watkins was for many years connected with the Home Electric Company of Tacoma, Wash., and for the past three years has maintained a contractor-dealer establishment at Vallejo, Calif. The firm will handle several standard lines of electrical supplies and appliances on a wholesale basis and will cater strictly to the already established distributing outlets.

Second Turbo-Electric Ferry Is Delivered to Owners

The "San Leandro," the second of two turbo-electric ferry boats recently constructed for the San Francisco-Oakland Terminal Railways Company, has been docked at the Key Route pier, on the Oakland side of San Francisco Bay. The vessel was run from San Pedro, where it was constructed, to San Francisco, on its own power.

Minor additions will be made to the boat before it is put in the ferry service of the company. Trial trips will be conducted in San Francisco Bay prior to putting the boat in service.

Illustrated Monograph Features Better Store Lighting

A monograph designed to assist central stations and contractor-dealers in creating a demand for better store lighting has recently been published by the Society for Electrical Development, Inc. The 94-page booklet is entitled "Building Store Lighting Business."

The booklet is designed to be used as a reference volume and is a compilation of data previously published by the organization and other agencies, as well as much new material. A presentation is made of the results of tests held in various cities throughout the United States, in addition to suggestions as to ways of interesting store owners in better illumination.

The new booklet contains a review of the possibilities of show window lighting, from the point of view of the merchant, central station and the entire industry. Reproductions of advertisements suitable for use in connection with a campaign for better lighting are also presented in the publication. Publicity stories, suitable for use in newspapers, are attached to the booklet. These items can be used to supplement the display space purchased by the advertiser.

Copies of the monograph may be secured by addressing the Staff Headquarters of the Society for Electrical Development, Inc., 522 Fifth Avenue, New York, N. Y.

Portland Company Orders Large Motor-Generator Set

An order for the largest motor-generator set used by a public utility company for lighting and power service on the Pacific Coast has just been placed by the Northwestern Electric Company, Portland, Ore. The Westinghouse Electric & Manufacturing Company will build the set which is to consist of one 3,600-hp., 11,000-volt, 3-phase, synchronous motor, direct connected to two 1,250-kw., 275-volt, d.c. generators. The generators will be directly connected to a 28-kw. exciter. The unit will operate at 720 r.p.m.

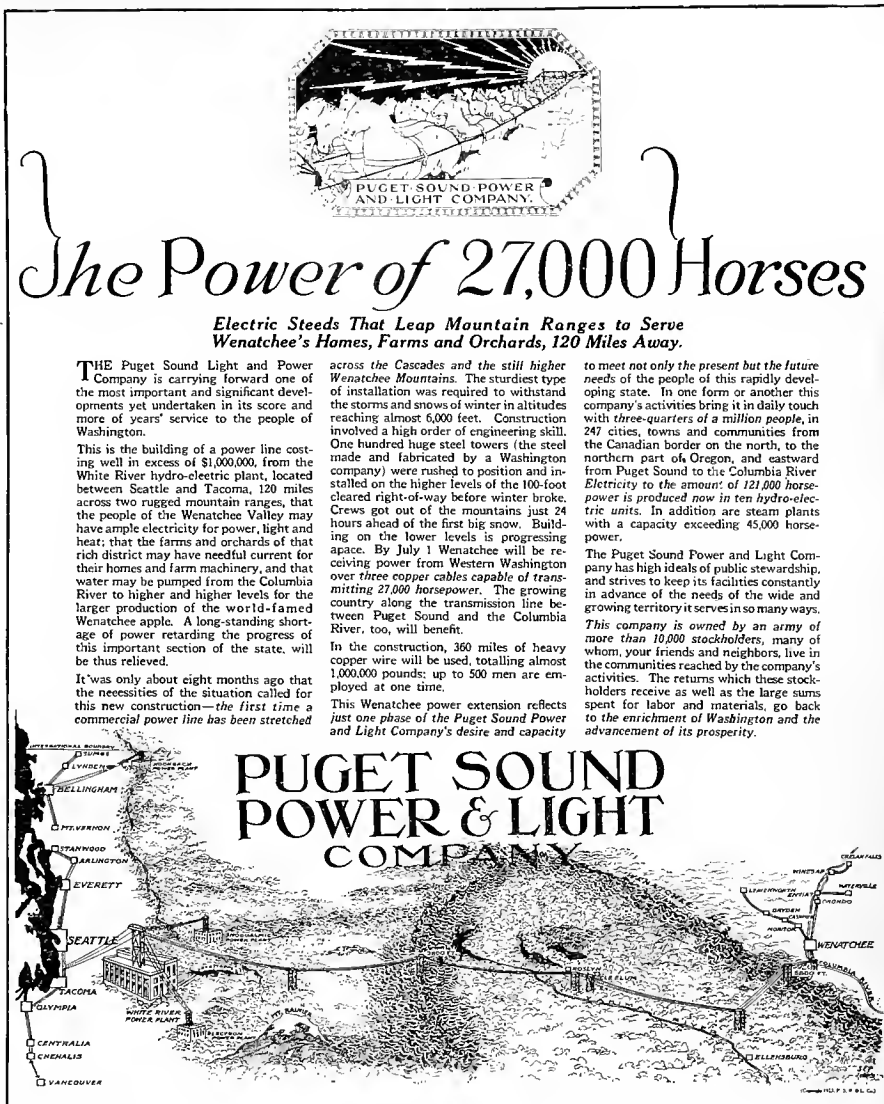
The new motor-generator set will be installed in the Pittock steam plant of the company in Portland. With the addition of the new unit, the direct current generating capacity of the company will be raised to 7,000 kw. There are now three 1,500-kw. motor-generator sets in the company's plants.

History of Industry Presented by Meter Manufacturer

In a booklet of special edition, the Sangamo Electric Company, Springfield, Ohio, manufactureres of Sangamo meters, has presented the historical background of the central station industry. A brief summary is given of the early developments in the discovery of electricity as it affects central station service.

The booklet, which is attractively illustrated, is known as Bulletin No. 63. The title of the bulletin is "Service to the Central Station Industry."

The Lebanon Light & Power Company, owned for the past fifteen years by a group of Lebanon, Ore., business men was sold to the Mountain States Power Company for \$100,000.



The Power of 27,000 Horses

Electric Steeds That Leap Mountain Ranges to Serve Wenatchee's Homes, Farms and Orchards, 120 Miles Away.

THE Puget Sound Light and Power Company is carrying forward one of the most important and significant developments yet undertaken in its score and more of years' service to the people of Washington.

This is the building of a power line costing well in excess of \$1,000,000, from the White River hydro-electric plant, located between Seattle and Tacoma, 120 miles across two rugged mountain ranges, that the people of the Wenatchee Valley may have ample electricity for power, light and heat; that the farms and orchards of that rich district may have needful current for their homes and farm machinery, and that water may be pumped from the Columbia River to higher and higher levels for the larger production of the world-famed Wenatchee apple. A long-standing shortage of power retarding the progress of this important section of the state, will be thus relieved.

It was only about eight months ago that the necessities of the situation called for this new construction—the first time a commercial power line has been stretched across the Cascades and the still higher Wenatchee Mountains. The sturdiest type of installation was required to withstand the storms and snows of winter in altitudes reaching almost 6,000 feet. Construction involved a high order of engineering skill. One hundred huge steel towers (the steel made and fabricated by a Washington company) were rushed to position and installed on the higher levels of the 100-foot cleared right-of-way before winter broke. Crews got out of the mountains just 24 hours ahead of the first big snow. Building on the lower levels is progressing apace. By July 1 Wenatchee will be receiving power from Western Washington over three copper cables capable of transmitting 27,000 horsepower. The growing country along the transmission line between Puget Sound and the Columbia River, too, will benefit.

In the construction, 360 miles of heavy copper wire will be used, totalling almost 1,000,000 pounds; up to 500 men are employed at one time.

This Wenatchee power extension reflects just one phase of the Puget Sound Power and Light Company's desire and capacity to meet not only the present but the future needs of the people of this rapidly developing state. In one form or another this company's activities bring it in daily touch with three-quarters of a million people, in 247 cities, towns and communities from the Canadian border on the north, to the northern part of Oregon, and eastward from Puget Sound to the Columbia River. Electricity to the amount of 121,000 horsepower is produced now in ten hydro-electric units. In addition are steam plants with a capacity exceeding 45,000 horsepower.

The Puget Sound Power and Light Company has high ideals of public stewardship, and strives to keep its facilities constantly in advance of the needs of the wide and growing territory it serves in so many ways. This company is owned by an army of more than 10,000 stockholders, many of whom, your friends and neighbors, live in the communities reached by the company's activities. The returns which these stockholders receive as well as the large sums spent for labor and materials, go back to the enrichment of Washington and the advancement of its prosperity.

PUGET SOUND POWER & LIGHT COMPANY

A sample of the newspaper advertising employed by the Puget Sound Power & Light Company.

Puget Sound Company Conducting Advertising Campaign

To promote good will in the territory that it serves, the Puget Sound Power & Light Company has recently been conducting an advertising campaign, which has been presented through approximately 100 newspapers in northern Oregon and Washington. The company operates in 247 cities from northern Oregon to the Canadian border.

In general, the campaign has been an educational one, showing the readers the extent of the company's holdings. An effort has also been made to impress upon the company's customers the amount of power that it is providing for the use of its patrons. The results have been very satisfactory, according to reports from the company, and it is probable that the campaign will be continued.

Linked with the good will idea is the sale of stock to the consumers. Each advertisement carries with it a suggestion of the value of the company's securities. In addition to this, a parallel campaign is being carried on by the Puget Sound Power & Light Securities Company, a subsidiary organization formed for the purpose of dealing in stocks, notes and bonds of the parent company. The advertising employed by

this company is very similar to that of the central station company and also endeavors to create good will.

The Citizens' Club of Chehalis, Wash., has received a telephone franchise from the State of Washington, under which it may erect a line to Randle in the Big Bottom country, along the route of the Pacific Highway from Chehalis to Jackson Prairie, thence by the National Park Highway. It is planned also to build a line from Jackson Prairie to Lewis and Clark State Park, at the south end of the prairie. Plans of the promoters of the project are the construction of a telephone line with the object of bringing eastern Lewis county and intermediate points into direct communication with Chehalis.

The third conduit, planned to bring Bull Run water from the headworks, 25 miles east of the city, to the Portland, Ore., reservoirs will be constructed without further delay. The new pipe line is estimated to cost between \$2,500,000 and \$3,000,000 and engineers of the water department declare that it should be completed by 1925. It will follow a route separate from the routes of the two pipe lines that now bring Portland's water supply to the city.

Advantages of Electricity Are Told in Radio Concerts

"Electra, Our New Laundress," or "How to Be Happy, Though Working," could well be the subject of some of the weekly radio matinees now being featured by the Electrical Cooperative League of Denver in conjunction with a local broadcasting station. Every Thursday afternoon for several months talks and advice on all phases of "Electricity in the Home" have been given by members of the league staff of specialists from some branch of the industry.

A complete program embracing the general subject was mapped out by S. W. Bishop, executive manager of the organization, in order that every phase of application might be given proper treatment, and so that the talk each week would be interesting in itself.

Proper wiring in the home was covered by an introduction and a personally conducted tour through an "aerial" model electrical home. Details were given as to the furnishings, the scheme of decorations and the exact locations of electrical equipment and appliances. One floor of the house was explained each week for three weeks and then the program was retraced to the point where a radio "demonstration" of heating devices and small table appliances could be given treatment.

Vacuum cleaners of all types and their vital points of difference without mention of trade names were explained under the title of "Cleaning by Electricity." The subject of laundrying was reviewed in two parts, the first in reference to the washing machine and the second on ironing machines and the hand iron. To make the subject more realistic discussion was also given to the placement of the laundry tubs, the necessity of good drains, laundry chutes, etc.

Convenience outlets were frequently mentioned in every talk. It was explained that those were the devices which really made possible the fullest possible use and a very flexible application of all types of appliances and even portable lamps. Reports were received from several Denver contractors after the talks that direct orders had been received for the installation of outlets as a result of the radio matinees. The second phase of the talks will cover home lighting.

That considerable interest has been developed in the mountain region as a result of the talks is evidenced by the comment made in some of the country papers relative to the groups of women who meet every Thursday at some friend's home to "be educated electrically" via the loudspeaker. The Denver league has also received letters asking for detailed information on electrical subjects as a result of the talks.

To give exposition to another phase of the industry's problems the league invited the Rocky Mountain Committee a ten-minute discourse each week on good will, tax exempt securities, municipal and private ownership, and similar subjects. George E. Lewis, executive manager of the committee, gave the talks.

With the proposal of the establishment of a high-powered broadcasting station in Denver soon, the electrical industry there, it is said, will then double

its efforts along lines of educational talks in order that every nook of the mountain region can be easily reached with its interesting and informative messages.

Reorganization of the Burns Electric Light & Power Company, of Burns, Ore., will be effected soon, according to a report sent to the Oregon Public Service Commission in Salem by H. M. Horton, president of the company. The company has been struggling along for two years with an annual loss of \$2,000 according to Mr. Horton.

San Francisco Branch Banks Aid in June Bride Campaign

In continuance of its policy of presenting window displays of timely interest, the Mercantile Trust Company of California, during June Bride Week, presented a typical electrical exhibit in several of its branch bank windows. The company operates a number of branch offices in the San Francisco Bay territory and the window trim was presented in a number of locations in which it might not have been were it not used by the banking company.

The window that was presented required only a small amount of work, but it was particularly attractive. A small bride and groom were used to lend atmosphere to the window, and in the center of the window some piece of electrical equipment was shown. The card of the California Electrical Cooperative Campaign was also displayed in the window.

The same scheme of decorating the window was used in all of the branch offices. The electrical equipment that was displayed was borrowed from contractor-dealers in the vicinity of the bank.

Program Perfected for Meeting of Contractors and Dealers

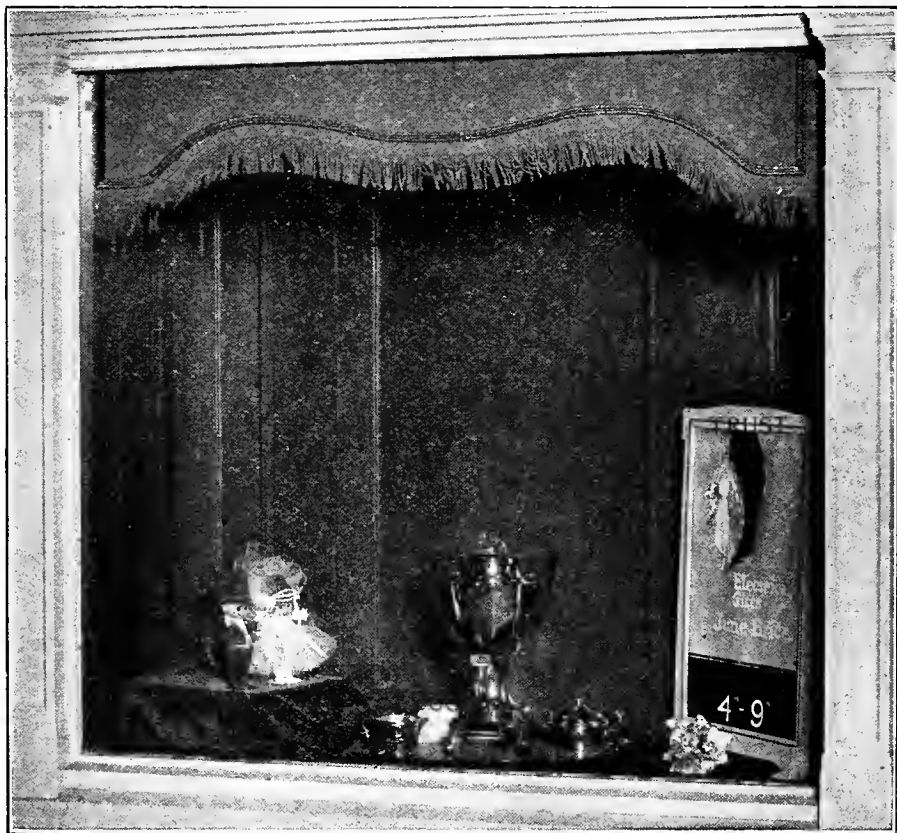
Arrangements have been completed for the San Francisco conference of the Pacific Coast Division of the Association of Electragists International, to be held at the Palace Hotel, July 23, 1923. The occasion of the conference is the annual visit of James R. Strong, president of the association. Mr. Strong is accompanied on his visit by Laurance W. Davis, director of the association, and O. C. Small of the Society for Electrical Development.

The program for the afternoon open session will include an address on "The New York City Movement—The Eidlitz Plan," by Mr. Small, a talk on "Estimating and Selling the Job," by Mr. Davis, and an address on "Overcoming Sales Resistance to Electrical Sales," by Mr. Small.

At 6 p.m., an informal dinner will be tendered the three visitors, at the Palace Hotel. This will be followed by a special meeting in the evening, for contractors and dealers, in which Mr. Strong will discuss the activities of the association. Mr. Strong will be the speaker of the day at the regular meeting of the San Francisco Electrical Development League, on Monday, July 23.

The United States Civil Service Commission has announced that it will hold an open competitive examination for the position of electrical draftsman in the Bureau of Yards and Docks. Applications will be received until Aug. 7.

Stephen I. Miller, Jr., dean of the School of Business Administration of the University of Washington, was the guest of honor and principal speaker at the June 21 weekly meeting of the Electric Club of Seattle.



Displays similar to this one were put in the windows of several of the branch offices of the Mercantile Trust Company of California, in the San Francisco Bay region, during June Bride Week.

Meetings

San Diego Electrical Retailers Form New Association

Following the example set by the electrical contractors of San Diego County, the electric dealers of San Diego, Calif., decided to organize an association for the promotion of mutual benefits through the education of the public to the use of electrical appliances and convenience outlets. The first meeting of the embryo Electrical Dealers' Association of San Diego County was held, June 22. At this time a tentative code of ethics was drawn up, similar in spirit to that which the electrical contractors pledged themselves earlier in the month.

The chief difference in the two codes is in the provisions in the dealers' association code for the selection and education of employees. Employees, clerks or salesmen are to be carefully selected as to honesty, ability and anxiousness to learn the benefits of electricity and its applications in home use. Training of employees to eliminate false statements, disparaging statements concerning competitors, and to promote the education of the public to electricity, are the principal clauses. Truth in advertising, careful buying, courteous servicing of appliances, non-infringement on the agency rights of competing dealers in handling special brands of appliances, refraining from offering commissions to employees of other firms, or employing in any capacity members of other firms, and the agreement that no contract not approved by the association be entered into by any dealer member with any customer, are other leading features of the code.

Another meeting is to be held this month, for the completing of the organization of this association.

Plans for Regional Meetings of Contractor-Dealers Made

Preparations for two of the regional meetings of the Association of Electragists, International, have been completed. These meetings are to be attended by James R. Strong, president of the organization, Laurence W. Davis, director of the promotion and development department of the association, and A. P. Peterson, western field representative.

The first meeting to be held in the West will be held at Denver, Colo., on July 16. From Denver the association representatives will go to Salt Lake City, Utah, on July 18, and then to Los Angeles, where a meeting will be held, July 20.

The program for the Denver convention has been arranged by E. C. Headrick, representing the Mountain Division on the national executive committee, and H. Alex Hibbard, secretary and treasurer of the Denver Electrical Contractors' Association, Inc. This will be the first convention ever held by the Mountain Division of the international association.

The convention program will open with a luncheon which will be followed

by an afternoon business session at which President Strong will preside. At the afternoon meeting, Mr. Peterson will speak on "Residence Wiring Survey," while Mr. Davis will talk on "Estimating and Selling the Job." John F. Greenawalt, publicity manager of the Mountain States Telephone & Telegraph Company, is the only Denver speaker listed and his subject will be "Organization."

President Strong will be the principal speaker at the banquet to be given in the evening. The reception committee appointed by the Denver contractors for the occasion includes John W. Hancock, D. D. Sturgeon and Clark Rider.

A luncheon under the auspices of the Electrical Contractors and Dealers Association of Los Angeles will be given the visitors, at the Jonathan Club, at noon on July 20. The luncheon will be informal and will be attended by a few of the leaders of the industry in Los Angeles. In the evening, a banquet will be held, at the Paulais Cafe, to which all of the electrical contractors and dealers of southern California will be

over last year. Quotas for the manufacturers, jobbers and central stations were increased, while that of the contractor-dealers was decreased.

The first group to report a complete subscription to the campaign was the jobbers. The eight eligible firms in Denver at one meeting pledged their full quota of \$2,300. According to the latest reports, the other three divisions are engaged in an arduous campaign to meet their quotas.

In addition to the further development of field activities, the principal item of interest in the new program of the League is the installation of a commercial-industrial lighting exhibit, space for which has already been established at the League headquarters.

Cooperative Talk Presented to Vancouver Electragists

Kenneth A. McIntyre, special representative of the Society for Electrical Development, addressed a joint dinner of the members of the Vancouver Association of Electragists, International, and the Electrical Service League of British Columbia, at the Hotel Elysium, on June 26. In the absence of E. E. Walker, chairman of the Advisory Council of the Electrical Service League, John R. Read, local manager of the Canadian Westinghouse Company, presided.

The subject of Mr. McIntyre's address was "League Work—Its Purposes, Possibilities and Limitations." Mr. McIntyre stated cooperative work was preparing the consumer through various mediums of publicity for the individual effort of the contractor-dealer, manufacturer, jobber and central station representative. He stressed the point that cooperative work could never hope to supplant the results of individual effort, but that through co-operation the individual could receive the benefit of much publicity which could not be financed by any particular branch of the industry alone. He also stressed the fact that the electrical field was far from saturation, either as to wiring, lighting, or appliances, and that the industry as a whole must not overlook the opportunity afforded through league work to break down sales resistance on the part of the public.

Following Mr. McIntyre's address, an open forum was held for an hour, the chief topic under discussion being the solution of the present unsatisfactory system of distribution, which gave the contractor-dealer branch of the industry little or no protection as against large consumers. It was apparent from the number of contractor-dealers who spoke on this point that the question of protection as against consumers is of vital importance to that branch of the industry and that the problem must be solved at no far distant date by the industry as a whole.

The industrial and commercial section of the recent Elks' Circus, held in San Diego, Calif., in Balboa Park, gave an opportunity to several of the electrical dealers and the central station of the city to present displays of electrical equipment. The San Diego Consolidated Gas & Electric Company booth was filled with exhibits designed to show the growth of the utility company during the past ten or more years.

COMING EVENTS

Rocky Mountain Division—National Electric Light Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

Colorado Public Service Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

American Institute of Electrical Engineers—

Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

invited. At this meeting, addresses will be presented by President Strong, Mr. Davis and O. C. Small of the Society for Electrical Development.

The officers of the Los Angeles local association are to be responsible for the meetings that will be held there. The officers are: H. H. Walker, president; G. E. Arbogast, vice-president; C. T. Smallcomb, vice-president; F. E. Elser, vice-president; E. J. Pineau, secretary-treasurer, and Helen I. Miksell, executive secretary.

New Officers Elected by Denver Cooperative League

Preparatory to launching its third campaign in Denver, the Electrical Cooperative League of that city held its annual election of officers, June 27. O. L. Mackell, chief clerk and office manager of the Denver Gas & Electric Light Company, was unanimously elected chairman, as were the other officers. D. D. Sturgeon, a prominent electragist, was chosen vice-chairman, while Dean D. Clark, Denver commercial manager of the Mountain States Telephone & Telegraph Company, was named as treasurer. R. W. Elliott of the Albert Sechrist Manufacturing Company was re-elected secretary.

Immediately after the election, the new chairman appointed skeleton committees to undertake the membership drive and financial development part of the League's program until the membership of the advisory board was completed. Previously a recommended program for the fiscal year, starting July 1, was adopted. This provides for a budget of \$13,500, an increase of \$3,000

Personals

Laurence M. Klauber, elected president of the Pacific Coast Electrical Association, at its seventh annual convention in San Francisco, June 19-23, has gradually and with surety climbed to positions of prominence since he graduated from Stanford University's department of electrical engineering, in



LAURENCE M. KLAUBER

1908. Mr. Klauber, a native of San Diego, continued his training as a Westinghouse graduate apprentice during 1908-1910. Returning to San Diego he entered the employ of the San Diego Consolidated Gas & Electric Company, in 1910, as a new business solicitor. Subsequently he became engineer of records, superintendent of the electric department, assistant general superintendent, general superintendent, and is now vice-president and general superintendent. Mr. Klauber is a member of the American Institute of Electrical Engineers, American Society of Mechanical Engineers, American Society of Civil Engineers, American Chemical Society, and other technical and scientific societies. He is a director of the Pacific Coast Gas Association and secretary-treasurer of the California Gas Research Council. Last year Mr. Klauber was chairman of the Overhead Systems Committee, National Electric Light Association, and member of the Prime Movers, Safety Rules and Inductive Co-ordination Committees. He is also vice-chairman of the Technical National Section.

George E. Lewis, executive manager of the Rocky Mountain Committee on Public Utility Information, is engaged in a two month's tour through the states of Colorado, Wyoming and New Mexico acquainting himself more directly with the central stations and in establishing contact with the newspapers throughout the region.

W. G. Murrin, who was recently appointed vice-president in charge of operations on the mainland of the British Columbia Electric Railway Company, Ltd., has returned to his headquarters at Vancouver after an extended trip to England.

John J. Cooper, past chairman of the Electrical Cooperative League of Denver and a prominent jobber in that city, has just returned from an extended eastern trip which included attendance at the Electrical Supply Jobbers' Association convention at Hot Springs, Va., and the N.E.L.A. convention in New York City.

James C. Bennett, comptroller of the Westinghouse Electric & Manufacturing Company, was elected a director of the company at a meeting of the stockholders, June 13, in the place of John R. McCune, who died May 14. Edwin F. Atkins of E. Atkins & Company, Boston, Mass., Samuel M. Vauclain, president of the Baldwin Locomotive Works, Philadelphia, Pa., and E. M. Herr, president of the Westinghouse Electric & Manufacturing Company, were re-elected on the board of directors at this meeting.

E. M. Breed, for several years past assistant manager of sales for the Pelton Water Wheel Company, has been appointed sales manager for the company, with headquarters in San Francisco. Mr. Breed has had a wide experience in hydroelectric work, having been connected with the Pelton Water Wheel Company in various capacities for the past fifteen years.

E. Whitmore, first vice-president and treasurer of the Manhattan Electrical Supply Company, New York, officially retired from the company on July 1. He has been with the company for 33 years and rose from the ranks to the position he held at retirement.

Charles F. Oehlmer, for a number of years a member of the electrical inspection force in Denver, has been appointed chief inspector by Mayor Stapleton to succeed Charles Oliver. The labor convention held before the municipal election recommended his appointment which was also given indorsement by the electrical union of which he is a member.

A. F. Wakefield was elected vice-president of the F. W. Wakefield Brass Company of Vermilion, Ohio, at the annual meeting held recently, the other officers remaining unchanged. Mr. Wakefield joined the company four years ago as assistant to the sales manager, and has made rapid strides in the organization.

F. E. Weymouth, engineer-in-chief of the Reclamation Service, was named by Secretary of the Interior Work, effective July 1, a member of the committee investigating the Columbia Basin and Umatilla Irrigation projects. The committee now consists of Francis M. Goodwin, Assistant Secretary of the Interior; David W. Davis, Commissioner of Reclamation; and F. E. Weymouth, Chief Engineer.

D. J. McCarthy, superintendent of gas production at the Potrero plant of the Pacific Gas and Electric Company in San Francisco, spent his vacation visiting gas plants in other parts of the state, notably the south. San Diego and Los Angeles were in his itinerary.

J. H. Jamison, manager of the merchandising division, Los Angeles office, Westinghouse Electric & Manufacturing Company, has just recently returned from a two weeks' visit to El Paso, Texas, where he has been investigating the merchandising of electrical appliances in that section with the Mine & Smelter Supply Company, Westinghouse agent jobbers in that territory.

Clifford H. Langford, chief correspondent of the San Francisco office of the Westinghouse Electric & Manufacturing Company, has recently returned from Washington, D. C., where he attended the Shriner's annual convention. While in the East Mr. Langford visited the principal offices of the Westinghouse company, spending some time at New York, Pittsburgh, East Pittsburgh and Chicago.

H. A. Wegener, has just joined the Los Angeles office of the Westinghouse Electric & Manufacturing Company in the capacity of insulator specialist. Mr. Wegener has for the past four years been insulator specialist of the St. Louis office of the Westinghouse Company and for a number of years prior to that time he was in the insulator department of the Westinghouse factory in East Pittsburgh.

E. R. Owen, division manager of the Utah Power & Light Company at Logan, Utah, has gone to Seattle on business connected with his company.

George Kidd, general manager of the British Columbia Electric Railway Company, Ltd., Vancouver, B. C., has been appointed president of the company by the board of directors as the result of a recent meeting in London. At the same time W. G. Murrin, assistant general manager, has been made vice-president in charge of operations on the mainland and A. T. Goward, manager at Victoria, has been appointed vice-president in charge of operation of the Vancouver Island system. These changes are the result of recommendations of Sir Ernest M. Harvey, one of the directors who recently visited the company's properties in Canada. No change in duties will take place, Mr. Kidd remaining in charge of the company's entire policies and holding power



GEORGE KIDD

of attorney for the board in London. Mr. Kidd is one of the outstanding figures in the electrical industry in British Columbia. He was the first chairman of the advisory committee of the Electrical Service League of British Columbia and was one of the factors in the success of that organization. He is a strong advocate of the policy of cooperation between the central station and the electrical dealer. It is believed that the announcement of the change in the titles of the various executives presages the passing of the actual control of the company from London to British Columbia.

General George W. Goethals, noted engineer, is a recent Los Angeles visitor. While in the Southwest, Mr. Goethals made a brief tour of inspection of some of the dam sites on the Colorado River.

C. R. Dederick, manufacturers' agent of Portland, Ore., spent several days in Los Angeles recently.

J. R. Viets, for many years in charge of the shipping department of the General Electric Company's Lynn Works, and more recently traffic representative for the New England district, has been appointed assistant traffic manager with headquarters at River Works, West Lynn, Mass.

D. D. Sturgeon, newly elected vice-chairman of the Electrical Cooperative League in Denver, after attending the Rotary club convention in St. Louis as a delegate, has extended his vacation with an eastern trip.

J. C. Davidson, manager of the electrical department of the Hendrie & Bolthoff Manufacturing & Supply Company, has been named head of the electrical supply jobbers organization operating in the Denver territory.

George L. Meyers of Portland, assistant to the President of the Pacific Power & Light Company, has been elected to the position of the president of the Northwestern Electric Light and Power Association. Mr. Meyers has for several years been active in the association and a constant worker. He was born in Redfield, S. D., February 25, 1889. He obtained his education in the public schools and at the early age of 14 was employed as printer and reporter for a weekly newspaper known as the "Press." Three years later he became one of the editors of the paper and here developed a fondness for press work that stands him in good stead at the



GEORGE L. MEYERS

present time. Finding his training was insufficient he enrolled with the Baker City Business College at Baker, Ore., from which he graduated in 1907 to become a public stenographer. March, 1909, found Mr. Meyers clerk of the Oregon State Senate and a little later private secretary of the Hon. Will R. King, Associate Justice of the Supreme Court. A little later during this same year he came to Portland and entered the employ of the Oregon-Washington Railway & Navigation Company as a stenographer to the vice-president and general manager. A year later Mr. Meyers threw his lot with the public

utilities by accepting a position as a stenographer to the president of the Pacific Power & Light Company, and the Portland Gas & Coke Company. Two years later he was advanced to the position of assistant to the president, which position he still holds. For the past six years Mr. Meyers has had no small part in the affairs of the association which he now heads. Beginning in 1917 as secretary-treasurer, he has served in one capacity or another until the present. As vice-president for Oregon and a member of the executive committee he has served continuously since 1919. During the past association year he was chairman of the executive committee of Public Relations section. He has also been active in the Pacific Coast Gas Association, having been a member of its board of directors and chairman of the committee on Legislation and Taxation. At present he is a member of the committee on Public Relations and chairman of the committee of the Gas Association dealing with Public Ownership of Securities. In addition to all of the above duties he still finds time to edit two house organs, the Pacific Power & Light Company Bulletin and the Bulletin of the Portland Gas & Coke Company.

H. A. Joslin, who has for four years been The Dalles manager of the Mountain States Power Company, has resigned that position to take up new work in Portland.

J. P. Pulliam of Milwaukee, Wis., president of the Eastern Oregon Light & Power Company, accompanied by C. V. Seastone of Madison, Wis., are in Baker, Ore., making a tour of inspection of the companies' holdings. They attended a recent stockholders' meeting in Baker at which the officers were re-elected for another term.

R. F. Walter, assistant chief engineer of the United States reclamation service; J. L. Savage, designing engineer, and James Munn, engineer, of the same force, spent the early part of June in Salt Lake City and vicinity as a board to report on the Utah lake division of the Great Salt Lake Basin investigation now being made by the state and reclamation service.

Robert Houston, electrical engineer for the Irrigation Commission of New South Wales, spent several days in Salt Lake City during June. Mr. Houston is studying electrical distribution problems in connection with service to rural communities.

Franklin S. Terry, co-manager of the National Lamp Works, Nela Park, Cleveland, was elected vice-president of the General Electric Company, and B. G. Tremaine, also co-manager of the National Lamp Works, was elected a director of the General Electric Company at a recent meeting of the board of directors held in New York City.

Rodney J. Bardwell and C. W. Oehlmann of the Denver Gas & Electric Light Company were the principal directors of the recent carnival and initiation of new members staged by the Denver Motor Club, which brought the membership of the organization up to a new record, the highest of any commercial or non-fraternal body in Colorado.

W. C. Sterne, prominent Colorado central station operator, was a visitor in California on his way to Hawaii where he will spend the summer with his son and daughter.

S. W. Bishop, executive manager of the Denver Electrical Cooperative League was a speaker on the Better Homes Show program in that city, June 23, which was designated as electrical night.

Victor Lemoge, San Francisco contractor-dealer, was elected president of Division 1 of the California State Association of Electrical Contractors and Dealers for the coming year at the recent convention of that organization at Donner Lake. Division 1 comprises the northern half of California. Mr. Lemoge succeeds E. Earle Browne of the firm of Browne-Langlais of San Francisco. Mr. Lemoge was born in Oakland, Calif., in 1884. He entered the electrical industry approximately 25 years ago as an electrical helper in the old Gas Consumers' Association. During the succeeding years he worked for



VICTOR LEMOGE

various contracting firms in San Francisco and seven years ago entered business for himself. Mr. Lemoge takes over the reins of the Association at a most auspicious time in the history of the organization for plans were perfected at the recent convention for widening its scope so as to include in its membership practically every electrical constructionist and retailer in the northern half of the state. The final details of the membership campaign which is to be undertaken in the near future are being perfected by the executive committee of the organization at the present time and will be announced in the near future. The California association has been one of the most active in the country and the electrical dependability symbol which it has adopted as its trade mark has had a far reaching effect.

Obituary

Leonard E. Curtis, widely known capitalist, and formerly a member of the electrical engineering firm of Curtis & Hine in New York City, died at his home in Colorado Springs, June 30, after a brief illness. He was former chairman of the Colorado State Highway Commission and held extensive mining interests in Mexico.

Manufacturer, Dealer and Jobber Activities

Betts & Betts Corporation, New York, has placed on the market a new receptacle flasher which is known as Type No. 005-R. The new flasher is smaller than the old type and is especially adaptable to window display signs. An adjusting screw in the bottom makes it possible to regulate the flashing action through a hole in the bottom of the sign without removing the face of the sign.

Uehling Instrument Company, Paterson, N. J., manufacturers of CO₂ recorders and draft vacuum gages, has recently made two agency appointments. The new agents are: Amsler-Morton Company, Fulton Building, Pittsburgh, Pa., for western Pennsylvania and John A. McWowell, 2039 Railway Exchange Building, St. Louis, Mo., for eastern Missouri and southern Illinois. H. R. N. Johnson, who formerly represented the Uehling Instrument Company in Minnesota and the Dakotas, has joined the W. P. Nevins Co., Minneapolis, Minn., which company is now the official Uehling representative, in the territory mentioned.

The **Westinghouse Electric & Manufacturing Company** has recently prepared for distribution to the trade, the Westinghouse Supply Catalog for 1923-24. Only a slight revision has been made in the catalog. The catalog is indexed according to subjects and to sections and in addition a classified index has been placed in the introductory section. The book contains about 1,300 pages of descriptive matter, technical data, dimension drawings, specifications and prices.

The **Martin Products Company**, San Francisco, Calif., is now manufacturing the Kercher Electric Cooker. The cooker has a combination of the electric oven and fireless cooker principles. H. J. Gute & Company, 150 Post Street, San Francisco, are the Pacific Coast representatives.

The **F. W. Wakefield Brass Company**, Vermilion, Ohio, is erecting an addition to its plant which will increase manufacturing space about 20 per cent. The company manufactures "Red Spot" hangers and other lighting specialties.

Landers, Frary & Clark, through their Denver, Colo., representative, H. W. Woeber, are assisting the Moore-Bird Company in the development of an electric appliance department that will feature Universal equipment. The Denver concern was recently organized as a hardware distributing agency.

B. F. Sturtevant Company, Boston, has recently purchased the plant of the Wisconsin Engine Company at Corliss, Wis. A full manufacturing and engineering staff will be maintained at the plant in order that better service may be given western customers.

The **Majestic Electric Appliance Company, Inc.**, San Francisco, Calif., has recently issued a four-page folder on Majestic round-type electric heaters and combination electric pancake and waffle irons. Complete description of the various types of air heaters is presented along with illustrations. The combination irons are also illustrated.

The **Jeffery-Dewitt Insulator Company**, Kenova, W. Va., is distributing a new catalog covering its products in high tension insulators. The company has also prepared for distribution Bulletin No. 5 which gives electrical and mechanical characteristics of flange-type insulators for switching equipment, bus supports, etc. The booklets may be obtained by addressing the executive sales office of the company at 50 Church Street, New York City.

The **Capitol Hill Electric Company** is the newest exclusive electric shop in Denver, Colo. The establishment is owned by Paul Edwards and is located at 3325 West Colfax Avenue. A complete line of appliances will be handled and a display of exclusive lighting fixtures for the home will be featured, according to the original announcement.



No, this is not the manager of Donner Lake Camp, as one might imagine. The gentleman is the sales manager of the Steel Cities Electric Company and is trying to keep up the Pittsburgh atmosphere to which he is accustomed. In his home town, he would not be recognized if he were to show up unaccompanied by the smoke screen, so, in order to look natural to other Pittsburghers, V. G. Fullman had to smoke the stogie. It is understood that Mr. Fullman really enjoyed getting away from the smoke-laden air of his headquarters, and still further enjoyed his outing with the contractor-dealers at their Donner Lake camp.

The **Denver Gas & Electric Light Company**, Denver, Colo., has given complete charge of the washing machine department to George Williams of the 1900 Washer Company. Mr. Williams has organized a special sales force to work in the residential section of Denver.

Baker-Joslyn Company, San Francisco, Calif., has recently been appointed exclusive Pacific Coast distributor for the Everstick Anchor Company. The distributor is carrying a complete line of the manufacturer's products.

The **Jerome Battery & Electric Company**, Jerome, Ariz., has been purchased by J. F. Crandall of Jerome. The establishment was formerly owned by Marshall Cain.

The **Johns-Pratt Company**, Hartford, Conn., has prepared Catalogs No. 51 and 52 describing the Noark service system manufactured by the company. The line of enclosed service switches is described. Noark meter-adapters are also treated in the booklets. Service and testing connections are suggested in Catalog No. 52.

The **Sangamo Electric Company**, Springfield, Ill., has recently published Bulletin No. 62, which supersedes Bulletin No. 58. The bulletin describes the locomotive-type ampere-hour meters manufactured by the company. Principles of operation as well as a complete description of the meter are given in the booklet.

The **Russell Electric Company**, Chicago, Ill., has recently placed on the market the "Hold-Heet" electric iron. The iron has several new features including a specially designed handle. The ironing surface is of nickel-plated steel.

The **Louis Allis Company**, Milwaukee, Wis., has recently announced two Pacific Coast agencies. H. M. Thomas Company, Oakland Bank Building, Oakland, Calif., has been given the exclusive agency for the State of California, and E. H. Albrecht & Company, Lewis Building, Portland, Ore., have been appointed sales agents for the state of Oregon.

The **Ajax Electrothermic Corporation**, Trenton, N. J., has published Bulletin No. 3 which describes the line of Ajax-Northrup high frequency induction furnaces and the Ajax-Northrup 35-kva. converter. The new converter is designed for use with the furnaces manufactured by the company. The bulletin contains data showing the kilowatt hours required for melting various metals at 100 per cent efficiency of the furnaces.

The **Western Electric** public address system was recently installed at the Tournament of Roses Stadium in the Arroyo Seco, Pasadena, Calif., where the graduation exercises of all the Pasadena High Schools took place. With this system installed more than 25,000 people who witnessed the exercises were able to hear all of the speakers audibly.

The **Holophane Glass Company, Inc.**, New York, N. Y., has issued a new publication entitled "Holophane Data-log." This is a 38-page illustrated booklet in which the first fifteen pages are devoted to illuminating engineering data and includes utilization coefficients for all types of Holophane luminaires and reflectors, worked out for various size rooms with various wall and ceiling reflection factors. The remainder of the booklet is devoted to description and data on the more popular Holophane luminaires and reflectors. Typical photometric distribution curves are shown for each type reflector.

The **Apex Electrical Distributing Company**, Cleveland, Ohio, has announced that Albert E. Richter, formerly northwest district manager for the company, has been named national sales promotion manager. Mr. Richter will have his headquarters at Cleveland. B. D. Schock has been named to fill the vacancy left by Mr. Richter and will have his headquarters in Minneapolis.

Trade Outlook

San Francisco

Little change in general business conditions has been noted in San Francisco during the last two weeks. The general tendency has been to buy for immediate needs. Leading jobbers have reported that stocks are not large in general lines, and that orders for fall are being received. The usual slackening of trade which accompanies the summer months has been noticed, but cool weather has retarded seasonal purchases of summer apparel. During the last week warm days have increased the demand for light clothing.

There seems to be no slump in building activity. The demand for building materials continues good and prices are firm. Labor is well employed at high wage scales.

The fruit crop is large and the railroads are handling it to the satisfaction of the growers. Grain crops are good. The movement of all classes of freight is exceptionally large.

In a recent compilation of the San Francisco Chamber of Commerce, it is stated that over five hundred new industries have located in the city during the first half of the current year. A capital investment of \$3,798,200 is represented in these industries.

Bank clearings for the two-week period ended June 28, were \$307,400,000, as against \$267,100,000 for the same period in 1922.

Salt Lake City

Dividend disbursements by the metal mines of Utah for the first six months of the current year were more than double those of the first half of 1922. The period of the last six months has been a record-breaking one for the silver-lead producers of this section.

Building activity continues to be one of the best indications of good conditions in this section, and it is predicted that in Salt Lake City the present year will mark a period of more building activity than has been witnessed in many years.

Electrical jobbers are handling considerably more business than for the same period of last year, and are very optimistic as to the future. Crop conditions are excellent in practically all of the intermountain agricultural sections.

All of these factors indicate a substantial foundation for steady improvement in business conditions, and it is felt that Utah and the intermountain section are in good shape.

Seattle

Production of lumber by Northwest mills has not decreased, although orders have diminished, and demands from wholesalers are lower than they have been for a long period. The mills are speeding up production and are making an effort to replenish yard stocks which are exceedingly low.

Building activities remain normal,

with the month of June showing permits for \$5,125,000, of which \$3,000,000 was for the new Hotel Olympic. Aside from the big hotel permit, the showing was good, with residence building looking up, and a number of good-sized projects started. Reports from other cities and towns in the state, particularly in the Puget Sound district, indicate that there will be a continuation of building during the month of July.

Figures for the first six months of 1923 show a gain of 34 per cent over the first six months of 1922, the valuation of buildings in the 1923 period being \$3,000,000 higher than for the first half of 1922.

General seasonal slowing up of demand in practically all lines is apparent in Seattle retail trade, and the next two months are expected to be light.

Electrical contractors and dealers report a continued shortage in conduit with sustained demand, and shipments from eastern points coming through slowly and irregularly. Other stocks are in good shape, with demands keeping up. Indications point to a continuance well into fall months.

Los Angeles

To the first of July it is estimated that the year's building in Los Angeles is approximately \$91,000,000 as compared with \$121,206,787 for the entire year of 1922, and \$82,761,386 in 1921. Postal receipts the first six months of this year were \$3,281,763 while for the entire year of 1922 they were \$5,813,139 and in 1920 only \$4,190,660.

The shortage of cement that caused a slight scare in building circles during the month has passed and from the report for the month the building activities were not affected in the slightest degree.

The Monroe Centennial and Motion Picture Exposition that is in progress now has attracted numerous visitors from all over the country and the hotels in the city and the beach resorts are crowded.

Business in the electrical industry holds up in remarkable fashion, this is particularly true of radio, which in the past has shown a considerable slump at this period of the year. Wholesalers and retailers report very good business. The sale of electric fans has not been very encouraging up to the present time but this is due to the cool weather that has prevailed thus far this season. On the few occasions that the weather has warmed up dealers were not able to get fans fast enough to supply the demand.

Denver

Weather conditions and conservatism have to some extent affected the forward trend of business indicated in this district during the earlier months of the year. Heavy rains have retarded farm operations although damage from floods has been practically negligible as com-

pared to adjacent territory to the east and south. The moisture however has been of incalculable benefit to agriculture and livestock, two of the chief industries of the district, and also encouraging to general business and banking.

Wholesale distribution of merchandise has been made in large volumes. Mining operations have shown no cessation while crude oil production is the highest on record.

June building permits were issued by the city in the amount of \$2,071,700 an increase of \$256,000 over the same month last year. The permits for the first half of the year amounted to \$2,302,450 over the corresponding period in 1922, with a total of \$11,534,450. Only the most serious kind of a building slump will prevent the present year from establishing a new high record for building.

In electrical lines the outlook is optimistic though cautious. Jobbers report a slight falling off in orders but this movement has every indication of a temporary nature. Conditions with the contractor-dealer are improving gradually with better prices being obtained for work. Heating appliances are slow while fan business is picking up with warmer weather.

Portland

Production of lumber by the mills of the Northwest has not decreased despite the fact that orders have diminished and demands from wholesalers are lower than they have been for a long time. The 130 mills reporting for the week of June 30 were producing at a rate 25 per cent above normal. There is no indication of a curtailment in the production as the unfilled orders are large and practically no stocks are on hand. The condition is not considered alarming, in fact the price reductions that have occurred have been welcomed by many mill men who feared a runaway market.

Portland building permits for the first half of 1923 were practically the same as for 1922 but showed a falling off of residence building and a corresponding increase in the other classes of construction.

The port of Portland during the first half of 1923 handled a much larger volume of freight, both inbound and outbound than during the corresponding period of 1922. Foreign shipments fell off somewhat but this was more than offset by the increases in domestic freight. The greatest increases occurred in traffic between Portland and the Atlantic seacoast. Another new steamship line has been added for trade with Europe, with a large steamer assured at least once a month.

An interesting statement showing Portland's financial status in the twenty-two banks on June 30 has been issued. The deposits, resources, loans and discounts, and cash and exchange, all showed a stronger condition on this date than a year ago, and with the exception of cash and exchange, the condition of all departments was substantially better than on April 3, 1923, the date of the previous statement.

Central stations are devoting a large amount of effort to the sales of ranges with gratifying results.

Construction News

Bridges

Calif., Redding—Contracts have been let by the Board of Supervisors for the building of three reinforced concrete bridges, one across Big Hatchet Creek, between Montgomery Creek and Burney, will cost \$11,750. Another across Little Hatchet Creek, on the same road, will cost \$6,793. A bridge across Roaring Creek, between Montgomery Creek and Bend, is to be built for \$2,734.

Colo., Denver—The State Highway Department only called for bids on one bridge of any importance during June and that was for a concrete span over Clear Creek, on the Denver-Arvida main highway. Construction will be done by the Colorado Bridge Co., at a cost of \$35,000.

Wash., Okanogan—All bids for erection of proposed five-span concrete bridge at Omak were rejected by Okanogan County Commissioners, and new bids will be called. Low bid was that of the Union Bridge Company, Seattle, \$84,735. Work involves 2,040 cu. yd. of concrete, 142,000 lb. of reinforcing steel and 13,000 ft. of piling. Bridge will be 408 ft. long, with a 20-ft. roadway.

Wash., Toledo—Union Bridge Company, Seattle, on a bid of \$62,000, received contract for a steel and concrete bridge across the Cowlitz River, at Toledo, from the Van Ness Lumber Company. Bridge will be 600 ft. long, consisting of two 150-ft. steel spans on concrete piers, with 300-ft. trestle approach.

Buildings (Industrial)

Calif., Riverside—Southern Sierras Power Company will start work in about 30 days on the proposed office structure for the company on 8th Street east of the Riverside Press Bldg. Plans will be rushed and forwarded to the Denver office for approval. The building will be 2 stories in height, of reinforced concrete construction.

Calif., Ontario—Chamber of Commerce has signed contract with Ontario Motor Products Company assuring the establishment of a new factory here. The company manufactures automobile specialties and is at present located in El Paso, Texas, and has about \$50,000 equipment and machinery which will be moved to Ontario. The new site is on the Southern Pacific tracks, near the Southern Counties Gas Company. Construction of the building will start within a week.

Calif., San Diego—San Diego Smelting and Refining Company has started work on the construction of a \$75,000 smelter on the line of the S.D.&A.Ry., between 28th and 29th Streets. Albert A. Sampson, 140 Cuyamaca Avenue, San Diego, is general manager of the company. The first unit will consist of 4 rotary oil burning furnaces with a capacity of 4 tons of ore an hour, for furnace, and a 1-ton converter.

Calif., Los Angeles—Frank D. Chase, Inc., engineers, 533 Title Insurance Bldg., has completed plans for a 1-story factory building to be erected at 49th and Loma Vista Streets in the Central Manufacturing District, for the Globe Soap Company. Brick, 96 x 125 ft., compound roofing, wood roof trusses, steel sash, loading platform, mezzanine floor, boiler room, concrete and wood floors, soap and glycerine tanks, metal skylights; the building will be erected by day labor, under the supervision of the engineer.

Calif., Los Angeles—Architect A. C. Martin, 431 Higgins Bldg., is completing plans and will take bids soon for the erection of a 5-story,

class A warehouse to be erected at San Pedro and Commercial Streets, for the Los Angeles Warehouse Company. It will be 100 x 160 ft., reinforced concrete construction basement, compound roofing, steel sash, elevators, steel rolling doors, concrete floors, metal skylights, wire glass, sprinkler system.

Colo., Denver—Plans for increasing the height of the Railway Exchange building at Seventeenth and Champa streets to 12 stories over the entire six lots in the property, are now in process of preparation by the architectural firm of Fisher & Fisher with offices in the United States National Bank Building. The floor plan will follow that of the present 7-story building covering half of the property. When completed it will be the second largest office building in the city in regard to number of offices. John A. Ferguson, prominent local capitalist, is owner of the property.

Ore., Eugene—The erection of a \$1,000,000 lumber plant and the inauguration of logging and sawmill operations on a large scale will follow immediately as a result of a recent purchase by George H. Kelly and associates of approximately 865 million feet of timber, located on the north fork of the Willamette river about 35 miles from Eugene. Mr. Kelly announced that the corporation capitalized at \$2,500,000 would be formed immediately and that plans would be laid at once for the erection of the sawmill with a capacity of 50 million feet of lumber a year, the building of 13 miles of logging railroad and the establishment of a lumbering town about two miles west of Oakridge. The tract consists of about 15,700 acres and is two miles west of Oakridge on the Natron cutoff.

Ore., Portland—The general contract for the construction of the garage on 21st near Washington street has been awarded to H. E. Doering. The building is 60 x 200, three stories, of flat slab, concrete construction, and will cost \$65,000.

Wash., Aberdeen—The Grays Manufacturing Company is to rebuild immediately the planing mill that was destroyed by fire at a loss of \$50,000.

Buildings (Miscellaneous)

Calif., Marysville—Auditorium—I. C. Evans, Marysville contractor, was the lowest bidder on the contract to build the proposed auditorium to be erected at Ninth and E Streets as a soldiers' memorial. His offer was \$118,940. The awarding of the contract has been postponed, pending the settlement of several details under consideration.

Calif., Durham—School—Voters of Durham have placed their stamp of approval on the proposition to issue \$90,000 in bonds for the erection of the Durham Union High School building here. The vote was 386 for the bonds and 92 against them. The proposed new building will have a floor space of 15,000 sq. ft. and will provide accommodations for 150 students. This is the second time the proposition of issuing bonds for a new school building has been voted on, a previous proposition to issue bonds having been defeated by a narrow margin.

Calif., Livermore—Hospital—Bids for construction of a 250-bed Veteran's Bureau hospital to be erected here will be advertised for within the next few days, according to an announcement recently made by the bureau at Washington, D. C. Another 250-bed hospital will be built at some location in Southern California.

Calif., Sacramento—Club—E. C. Hemmings and Leonard F. Starks have been named associate architects for the new million-dollar home of the Sacramento Elks Club to be erected at 11th and J Streets. Jens C. Peterson will be consulting architect.

Calif., Hanford—Civic Center—Hanford voted over 5 to 1 in favor of a \$190,000 bond issue for a civic center and public auditorium.

Calif., Los Angeles—School—Architects Noerberg & Johnson, 401 Los Angeles Railway Building, are completing plans for a class A school building to be erected on the 16th Street school site for a part-time school. It will be 3-story, designed for 6-story, 265 x 100 ft., with a 1-story auditorium and gymnasium, 100 x 57 ft.; reinforced concrete construction, face brick and terra cotta exterior, compound roofing, steel roof trusses over auditorium, maple finish floors, swimming pool; \$400,000. The board of education will advertise for bids shortly.

Highways

Calif., Escondido—Supervisors of San Diego County granted the request of a delegation of citizens to the paving of 1.6 miles of inland highway going through Escondido. The county agreed to pay \$26,000 of the cost, leaving \$9,000 to be paid by the city. Bids are to be advertised for as a result of the decision. Bids will also be called for paving a portion of the same highway from Lake Hodges to the Escondido city limits, and also from Vista to Bonsall, and from Fallbrook to the Riverside county line.

Calif., San Francisco—Appropriating \$500,000 for the new highway down the peninsula, the finance and street committees of the Board of Supervisors has taken the first step to relieve the congestion that has caused complaints. The supervisors approved of the highway program as recommended by Assistant City Engineer Clyde Healy, with the exception of an item of \$250,000 for the completion of the Market Street extension project. A total of \$688,000 was appropriated, the money to come out of the good roads fund.

Other projects and the amounts involved approved were: Marina Boulevard, \$80,000; Virginia Avenue, \$30,000; Avalon extension, \$20,000; San Jose Avenue widening, \$18,000; Silver Avenue improvements, from Mission Street to San Bruno Avenue, \$25,000.

Calif., Yuba City—The contract for paving the Bunce lateral for a distance of a mile—part of the county highway system—was awarded by the supervisors to Galbraith and Jones, of this county, for \$12,390. Heafy, Moore and McNair secured the contract for patching and paving several short stretches of road, to cost \$60,595.

Calif., Los Angeles—City Engineer Griffin is preparing plans for the six viaducts to be built over the Los Angeles River by the city, county and railways, following the voting of the \$2,000,000 bonds for the city's share of this work. The viaducts will be built at Macy, Aliso, First, Fourth, Seventh and Ninth Sts. The Ninth St. structure, as well as the others, will be reinforced concrete, 70 ft. in width; 3 arches, with long approaches. Work will necessitate the construction of six piers. The Ninth St. bridge will carry no railway tracks and will have a 56-ft. roadway, with 6-ft. walks and balustrade. The total cost will be \$1,000,000, of which the city will pay \$200,000.

Calif., Santa Barbara—An election will be held July 24, in the Santa Ynez Permanent Road Division, to vote on an issue of bonds in sum of \$305,392, for paving approximately 25 miles roadway. Surveyors are at work on the maps. Owen H. O'Neil, County Surveyor. The specifications call for a road 18 ft. wide, of 6-in. oil macadam construction, with concrete culverts where necessary. It will be widened at all turns beyond the 18-ft. width.

Calif., San Bernardino—Secretary of Agriculture Wallace has just approved an expenditure

of \$75,000 for extending the Big Bear Valley road in San Bernardino County three miles east of the dam, thus making the total length of the project a little over 13 miles, in the Angeles National Forest. Expenditures amounting to \$160,000 have been authorized by the secretary for the construction of 15 miles of road in Mariposa County, between Murphy and the Big Trees in the Stanislaus National Forest. An expenditure of \$150,000 for the construction of a little more than eight miles of road in Kern County, between First Crossing of Kern River and Democrat Springs, has also been authorized by the secretary. This road lies within the Sequoia National Forest and will open up a large recreational area. The Kern River Canyon offers a large number of excellent camp sites.

Colo., Denver—Contracts for state highway work totaling \$520,000 have been awarded to four different companies as the result of the governor approving the projects, which it is understood will be completed by early fall. To the Colorado Bridge & Construction Co. of Denver, two miles of paving, on the Fort Morgan-Brush road, and five miles of concrete, on the Denver-Morrison road, the largest awards have been made. The Dale & Hinman Co. of Denver, three miles of gravel surfacing, southeast of Durango, and a slightly larger project near Clifton; the H. M. Fox Co. of Florence, for gravel surfacing on the Pueblo-Florence road; White & Johnson, contractors, of Sterling, for three miles of concrete paving, each side of Platteville, are the other awards.

Idaho, Boise—Two miles of pavement are to be constructed between Fruitland and Payette, at an estimated cost of \$81,000, more than 50 per cent of which will be paid by the federal government. According to plans now formed, the new pavement will be completed before the heavy hauling of fruit begins in the fall.

Idaho, Boise—Shoshone County has voted \$350,000 worth of bonds, the proceeds of which are to be used in constructing highways and bridges in the county. The particular piece of work for which the money will be spent is the construction of about 22 miles of paving from Wallace to Mullan on the east, and from Wallace to Kellogg on the west.

Nev., Carson City—Alston & Hoggan, Salt Lake City, submitted low bid to State Highway Department, at \$39,954, for roadwork in Churchill County, between east city limits of Fallon and 4.99 miles south, Route 2, Section C-3, 4.99 miles.

Nev., Carson City—Alston & Hoggan, Salt Lake City, were awarded contract by State Highway Department, at \$31,926.90, for roadwork in Washoe County, between Reno and Lawtons, Route 1, Section A-1, 3.7 miles.

Ore., Portland—At a recent meeting of the State Highway Commission, road and bridge contracts aggregating \$310,422 were awarded as follows: Grading two miles and surfacing with crushed gravel, 6.3 miles of Hunter's Creek-Hunter's head section of Roosevelt highway in Curry County, to Schell & McKay of Bridge, Ore., for \$77,880. Grading and rock surfacing 15.4 miles of the Vale-Ontario section on John Day river highway in Malheur County, to A. D. Kern, Portland, for \$121,213. For constructing embankment approaches for the new Lewis and Clark river bridge on the Roosevelt highway about two miles south of Astoria, to Pacific Bridge Company of Portland, \$26,147. Building five bridges over Cummings Creek on the John Day river highway near Mt. Vernon in Grant County, to Monson-Trierweiler Co., Portland, for \$53,315. Constructing bridge over Applegate River near Grants Pass on the Grants Pass-Crescent City highway, to Union Bridge Company, Portland, for \$31,768.

Ore., Springfield—Bids for the surfacing of the Mohawk Valley road show the C. M. Igoe Company the lowest bidder for the 14 miles of

construction, for \$34,500. This company is expected to take the contract.

Ore., Roseburg—The eight-mile section of road in the Rock Creek forest boundary of the North Umpqua road is to be completed, at an estimated cost of \$35,000, as announced by Forest Supervisor Neil.

Ore., Salem—The State Highway Commission has awarded to Bauers and Bauers the contract for grading and surfacing the John Day highway in Grant County. The improvement covers a distance of 14 miles and the cost will total \$157,000.

Ore., Eugene—The Bureau of Public Roads has let the contract to the Warren Construction Company for the building of the Roosevelt highway between Devil's Lake and Siletz Bay in Lincoln County, the contract price being more than \$200,000, according to word received at the office of the Siuslaw National Forest here.

Utah, Salt Lake City—The State Road Commission has forwarded to the federal bureau of public roads district office at Ogden, the project statement covering the proposed resurfacing of the four miles of pavement between Layton and Clearfield, in Davis County. The estimated cost of the work is more than \$100,000. The project statement estimates are based on a 2-in. topping of bituminous concrete, with 3-ft. extensions on both sides of the present 16-ft. pavement, making a total width of the surfaced portion of the roadway 22 ft. The bituminous covering under the present estimates would be 20 ft. wide. The commission awarded to Kroft & Bundy the Woodruff-Wyoming seven miles of gravel surfacing, and to the Reynolds-Ely Construction Company the 12 miles of gravel road and two miles of cement concrete paving between Moroni and the Juab county line at the head of Salt Creek Canyon. These contractors were the respective low bidders on these projects.

Wash., Chehalis—The contract for the construction of road work has been awarded to George A. Bandoret of Bryn Mawr, Wash., on his bid of \$39,299. The work is to be grading, draining and clearing the right of way on the National Park highway for a distance of a little over two miles from Salkum, where last year's improvement stopped.

Wash., Raymond—Graveling 15.95 miles between Palix and Nasel in Pacific County, on the Ocean Beach highway, was awarded to K. L. Goulter & Co., Ilwaco, for \$56,577. Graveling 10.86 miles between Nasel and Sand Bridge road in Pacific County was awarded to the same firm, for \$28,962. Clearing, grading and surfacing with crushed rock 5.38 miles to Johnson's Landing, to Pentello & Pelemo of Nasel, for \$54,060.

Wash., Olympia—The State Highway Commission recently awarded the following contracts for state work in Wash.: Ocean Beach highway, Pacific County, .38 mile, clearing, grading, draining and surfacing with gravel, to J. E. Jones, Olympia, for \$19,457; Olympic Highway, Mason County, Mill Creek to Shelton, .62 mile, clearing, grading, draining and paving, to Philbrick & Nicholson, Shelton, for \$47,666.76; Inland Empire highway, in Wall County, from Waitsburg easterly, grading, draining and paving with concrete, to Pacific Coast Paving Company, Portland, for \$52,155; Inland Empire highway, Whitman County, Pullman to Palouse, 11.32 miles, clearing, grading and draining, to J. H. Ferterling, Moscow, Idaho, for \$108,378.

Wash., Bellingham—Whatcom County Commissioners recently awarded to C. L. La Plant of Sedro Woolley contract for paving 2¾ miles of the Acme-Wickersham highway, on his bid of \$69,635. Work involves 27,000 sq. yd. of concrete, 6 to 7¼ in. thick.

Wash., Seattle—King County Commissioners recently awarded to Thomas Hanson, Seattle, contract for grading the A Solberg road, on a bid of \$54,868. Work involves 90,673 cu. yd. of excavation.

Wash., Olympia—Funds amounting to \$962,177, to be spent on federal aid roads in the State of Washington, will become available at the beginning of the fiscal year of 1924. With the state's appropriation of an equal sum, which is required, there will be \$1,924,355 spent in Washington in 1924 on highway work.

Irrigation

Ariz., Yuma—Pacific Building Company, O. W. Cotton, president, 334 C St., San Diego, reports that the new Mohawk Valley Irrigation District has been organized to provide for 30,000 acres of land along the Gila River, starting 50 miles east of Yuma, and extending to within 140 miles of Phoenix. The project is in charge of Jim Dobbins, engineer, and O. W. Cotton, the latter having charge of the sale of land in the district. Norton P.O., on the Bankhead Ocean-to-Ocean highway, is in the center of the district. About 60 wells will be drilled to utilize the underground waters, and diversion canals will be constructed on the Gila River.

Idaho, American Falls—Bonds to the amount of \$2,750,000 were authorized at a recent election in the American Falls Irrigation District, for the purchase of storage water rights in the American Falls reservoir. The erection of the dam is thus made certain. This will create a storage reservoir of Snake river waters of 1,500,000 acre-feet capacity. The bonds represent the district's share of the construction work on the reservoir.

Mont., Fort Benton—Action is contemplated towards the formation of an irrigation district in the Lonesome Prairie section, involving some 250,000 acres of land. Engineers of the Anaconda Copper Company are said to have made a preliminary investigation and have reported favorably. The project involves the use of water from the Marias River and the building of a reservoir for impounding the waters.

Wash., Riverside—The Riverside Irrigation District Engineer is now preparing specifications for bids on the contract for an irrigation system to cover the Riverside district, the work to consist of a diversion dam, hydroelectric power plant, transmission lines, community pumps and distributing ditches. Engineering reports show 4,020 irrigable acres, for which the district voted \$450,000 bonds. One-half of the power developed will be used for pumping and the remainder for lights, heat and general purposes.

Wash., Yakima—Work on the Satus Irrigation Project, for which the government has set aside \$125,000, to be expended during the coming fiscal year, will be under way early in July, according to plans of the United States Reclamation Service. This unit of the Satus project will be watered from a canal cut out of Toppenish Creek, and distributed over 10,000 acres of land by gravity. When completed, the Satus project will irrigate 32,000 acres. The unit takes in the lowest lands that may be watered by a gravity flow; water will be pumped to the second unit, while the third will necessitate the construction of a dam to impound the flood waters of Satus Creek, which will cost \$1,000,000 or more. The construction will be mainly open canal, and the work will be done by dragline excavators.

Ore., Salem—Permit has been issued by State Engineer Copper to A. D. Gardner of Stayton, for the appropriation of 1,000 sec.-ft. of the water from the North Santiam River, for power development. Mr. Gardner proposes to develop a total of 13,636 hp. at four points between Mehama and the present development at Stayton, at an estimated cost of \$250,000. It is proposed to utilize the power for general commercial purposes and supply additional power to industries at Stayton, which now are utilizing 1,500 hp. developed at Stayton.

Wash., Vancouver—The Northwestern Electric Company plans during July to undertake the

last unit of its \$121,000 building program for 1923. This unit will be the erection of the second half of the big substation at 8th and King Streets, and will cost \$80,000. When completed, the substation and the high voltage lines extending from White Salmon through Camas and from Portland practically obviate all chance of a complete breakdown in Vancouver's lighting system.

Wash., Seattle—The Puget Sound Power & Light Company has awarded contract to Harry Brandt, Seattle, for construction of a \$15,000 substation at 4314 Pasadena Place.

Wash., Chehalis—The North Coast Power Company will run a power and light wire to the Lewis and Clark State Park, 12 miles south of Chehalis, to equip the park for camping grounds for tourists.

Wash., Seattle—The construction of the North Skagit substation building in the north district of the city will proceed by day labor under direction of Engineer C. F. Uhden, and will be completed within three months. The station will house the necessary electrical machinery for receiving of high tension current from the Gorge Creek powerhouse on the Skagit River. The current will come in at 165,000 volts and will be distributed at 26,000 volts. Engineer Uhden states that work on the building of the Gorge Creek powerhouse is now practically complete, and that the installation of the 150-ton crane will be started shortly.

Wash., Tacoma—Contract for erection of a tideflats substation building, to house the transformers of the Seattle-Tacoma intertie power transmission line, has been let to Steiro & Hansen. Building will be 20x65 ft., of concrete.

Power Projects

Colo., Collbran—Application for a franchise to construct and operate a power and light company has been made to the city board of trustees by C. L. Fenn of Salt Lake City. Owing to alleged insufficiency of advertising, action on the original petition has been delayed, but the sentiment expressed in the Plateau Valley, which will also be served by the company, if the permit is obtained, is strongly in favor of the new plant.

Railways

Ariz., Tucson—The proposed route of the Tucson, Phoenix & Tidewater Ry. will parallel the Southern Pacific line out of Tucson, to a point six miles beyond Red Rock, crossing the latter line by overhead trestle, crossing the Gila River and following the river seven or eight miles, down stream, crossing Sacaton Indian Reservation, thence to Chandler, skirting that city, and entering Phoenix by way of Mesa and Tempe. Jas. S. Douglas, promoter. The City Commission has voted to submit to the voters, on July 18, matter of franchise for road through Madison Street, Tucson.

Calif., San Luis Obispo—Southern Pacific Ry. plans to expend \$50,000 for a new power plant at local railway yards. It will consist of a battery of four modern water tube boilers, of 100 hp. each. W. H. Kirkbride, engineer of maintenance, in charge. Included in the program of improvement are a 100-ft. turntable, and a reinforced concrete oil storage building, costing \$4,000. The company is also opening a large granite quarry at Santa Margarita, to provide track ballast.

Calif., Los Angeles—F. R. Houghton, freight traffic manager of the Santa Fe system, announces that the railway is planning an extension of its line into Long Beach. The company is said to be negotiating for a site of 224 acres on the water front, now owned by the Dock and Terminal Company.

Calif., Los Angeles—Sharp & Fellow, Central Bldg. have the contract to construct a 3-mile spur track into the Torrance oil fields for the A., T. & S. F. Ry., costing \$175,000. W. K. Etter, acting general manager.

Calif., Los Angeles—Freight congestion in the section west of Beaumont will be greatly relieved through the double-tracking of the Southern Pacific from Colton to Beaumont, a distance of 23 miles. Heavy increases in traffic make imperative the added facilities for efficient freight handling. The construction program includes new sidetracks at all stations between the two terminals. Work will progress at once.

The Santa Fe Railroad Co. has announced the purchase of 160 acres four miles south of Inglewood, for purposes of industrial development. Approximately \$200,000 was paid for the property. The land lies along the new Harbor line of the company and fronts on Redondo Boulevard. Eastern industries will be brought to the industrial site under lease. Ample trackage facilities will be furnished, it is stated.

Calif., San Diego—The City Council of San Diego, on June 28, granted to the San Diego Electric Railway Company a new 50-yr. blanket franchise, covering all franchises on the lines of that company and extending each to 50 years. The franchise includes the right to the street car company to build a new line to La Jolla, through Mission Beach. Granting of right to the street railway company to abandon certain lines on Point Loma and the substitution of busses was deferred until decision of the State Railway Commission is made.

Colo., Denver—The Denver Tramway Co., though in the hands of a receiver and suffering from the continued campaign by the city to force a return to a five-cent fare, as the result of improvements to its generating system is now in position to provide extensions to some of the principal lines in the city. Among them will be a six-block loop on the 13th Avenue line, and later a similar extension at the end of the line to accommodate the new \$1,000,000 medical school and hospital of the State University.

Wash., Yakima—The O.-W. R. & N. Co. will spend \$190,000 here during 1923 and 1924, according to J. P. O'Brien of Portland, general manager of the road. Freight offices and a depot costing \$70,000 to \$75,000 will be built this summer. About \$40,000 will be spent on 13 acres acquired for industrial sites and a \$75,000 passenger station has been put in the 1924 budget, and undoubtedly will be approved, Mr. O'Brien said.

Street Lighting

Calif., San Bernardino—C. E. Johnson, City Engineer, has plans under way for street lighting projects totaling approximately \$104,000. These have been approved by the property owners. Bids for the lights on Mt. Vernon Avenue, between 3rd and Mill Streets, costing \$15,000, will be asked soon.

Calif., Manhattan Beach—W. T. Graner, Manhattan Beach, was awarded contract by city trustees, at \$1,910, for constructing ornamental lighting systems on Marine Avenue, between Ocean Drive and Grand View Avenue.

Calif., Los Angeles—C. W. Sparks, 417 E. Seaside Blvd., Long Beach, submitted low bid to board of public works and was awarded contract, at \$10,467, for furnishing and installing ornamental light systems in Belle Porte Avenue, between Weston Street and 50 ft. south of 255th St.

Wyo., Rawlins—The city council is receiving bids and allowing demonstrations to be made for a new ornamental lighting system to be installed in the business section.

Streets and Sewers

Calif., Williams—Voters here defeated the proposition to issue \$105,000 in bonds for a municipal water and sewer system. The vote was considered heavy and the issue was defeated by a narrow margin. On the \$45,000 sewer bond issue the vote was 261 yes and 136 no. On the \$60,000 water bond issue the vote was 252 yes and 145 no. This is the second

time the proposition to issue bonds for this purpose has been defeated.

Calif., Redding—Contracts have been signed by W. A. F. Norris of the Warren Construction Company and E. A. Rolison, City Manager, for paving 252,000 sq. ft. of streets and for making other street improvements, including sidewalks, gutters and curbs. The total cost is estimated at \$103,000.

Calif., San Francisco—Street contracts aggregating \$12,934.59 were let by the Board of Public Works, the awards being as follows: Collins Street, between St. Rose Avenue and Geary Street, \$588.25, to the City Construction Company; 22nd Street, between De Haro and Rhode Island Streets, \$3,296, to City Construction Company; Heyman Avenue, from Coleridge Street to Prospect Avenue, \$3,240.06, to Municipal Construction Company; Balboa Street, between 22nd and 23rd Avenues, \$596.58, to Municipal Construction Company, and Gilman Avenue from Ingalls to Griffiths Streets, \$5,213.70, to M. J. Lynch.

Calif., Oroville—Contract for laying approximately 4,000 ft. of sewer, which will complete the sewerage of Orange Heights, Oroville's new residence subdivision, has been let by E. W. Clemo, owner of the subdivision, to Chambers and De Golyer, Oakland contractors. The work will start about the middle of the month and will be completed so that home builders may connect with the sewer before winter.

Calif., Los Angeles—T. E. Shafer, 407 N. Rampart Blvd., was awarded contract by Board of Public Works, at \$10,781.03, for improving Mountain View Avenue, between Court St. and First St., involving grading, concrete paving, oiling and rolling, walk, gutter, storm drain complete. Engineer's estimate, \$10,035.42.

Calif., Visalia—Bids will be advertised for at once for the construction of a sewage disposal plant on the city sewer farm, for which bonds were recently voted. The tank will be a re-modified Imhoff, with special sludge-digesting tanks to take care of the refuse from the canneries.

Waterworks

Calif., Santa Barbara—City Council has called a special election for July 24, to vote a special tax assessment to raise a fund of \$100,000 for improving the water mains on State Street and connecting them with the source of supply.

Colo., Deertrail—As the result of a special election held recently, approval has been given to the issuance of \$40,000 of bonds to cover the building and construction of a complete water works system under the direction of A. A. Weiland, a Pueblo engineer.

Ore., Salem—Plans for the Oak Lodge Water District have been prepared by H. L. Gilbert, engineer, Couch Building. The plan contemplates furnishing Bull Run water to a district bounded on the north by the south line of Milwaukie, including Jennings Lodge on the south, and lying between Oatfield road and the Willamette River. The cost is estimated at some \$200,000. A bond election will be held, Aug. 2, and it is expected that the measure will pass. Contractors who expect to bid are urged to examine the plans at the office of the engineer and be prepared to submit figures as soon as the bonds are voted.

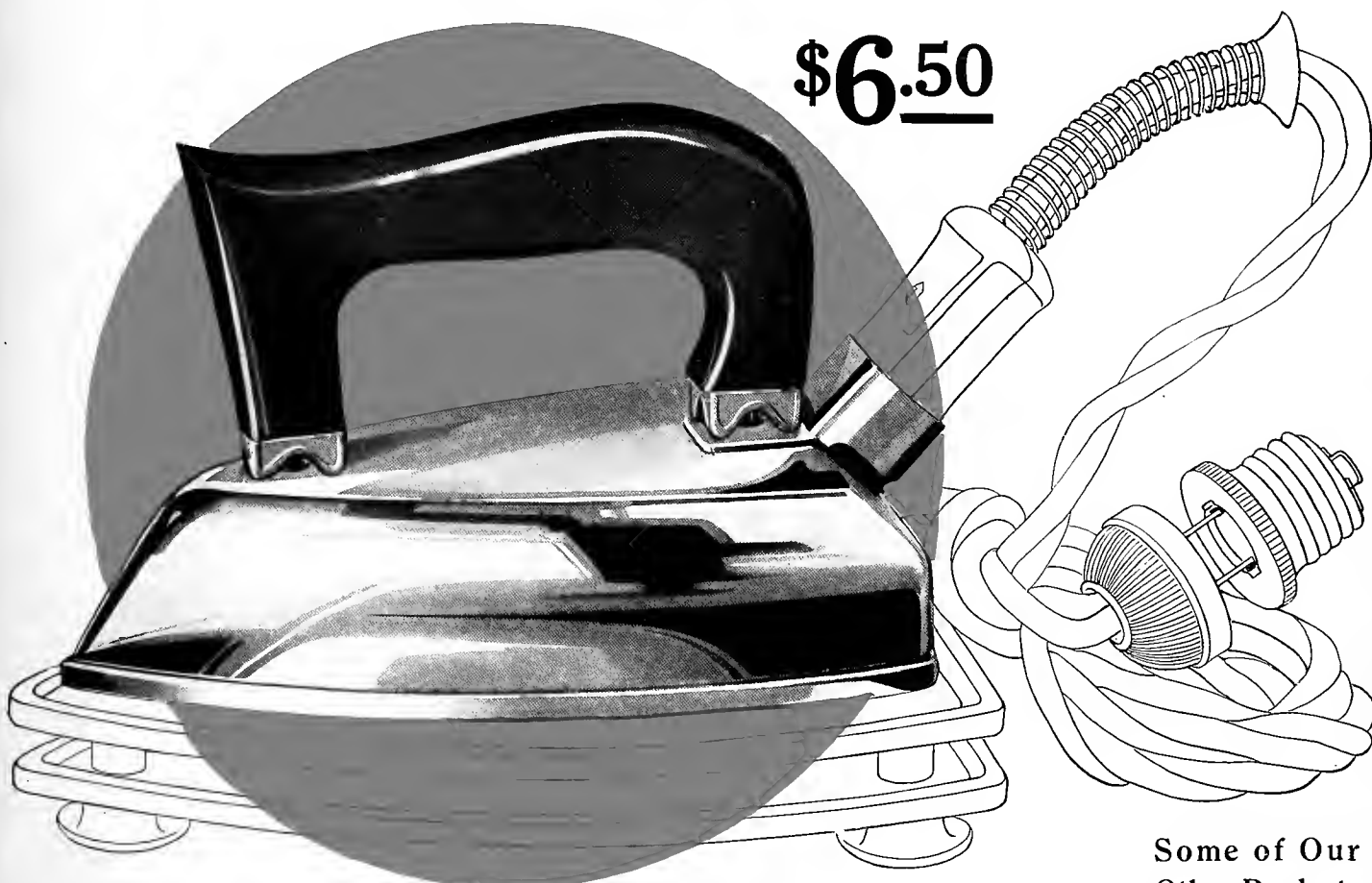
Wash., Camas—Stevens & Koon, consulting engineers, have plans and specifications for improvements to the water system of Camas, and bids will be received by W. E. Farr, City Clerk, at Camas, 8 p. m., July 20. The improvements will include the building of intake structures, hauling and laying 8½ miles of 8 and 10-in. welded steel pipe, furnishing and placing pipe line appurtenances, furnishing and erecting steel tank of 50,000 gal. capacity, and making certain improvements to the distribution system. Plans can be secured at the offices of the engineers, at their Portland office.

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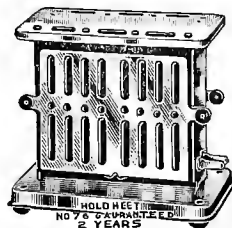
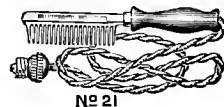
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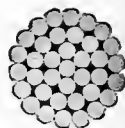
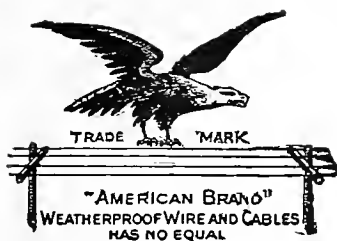
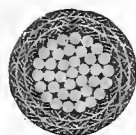
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Journal of Electricity

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Announcing a New Department

READERS of the Journal of Electricity will note the addition of a new department in this issue. Under the name of "The Coast Outlet," special attention will be given to the activities of the electrical contractor-dealers. The series of articles by Earl Browne, formerly published under the heading of "Electrical Construction," and which have been so favorably received, will be continued in this section. In addition, will appear the matter formerly published by the California Association of Electrical Contractors and Dealers in their publication "The Coast Outlet," which has been discontinued.

It is the purpose of the publishers to render to the contractor-dealers an even greater editorial service than in the past, to give them, through the medium of the printed page, the news of the industry, as well as the best constructive thought of the leaders of the profession. Thus, in the Journal of Electricity is embodied a journalistic service that is complete, carefully conceived and truly representative of all the co-ordinate divisions of the electrical industry of the West.

The importance of the contractor-dealer in the electrical scheme of things is without question. It is largely through him that the products of the central station, manufacturer, and jobber find their way into the home, to brighten the lives of the people, and to lighten the drudgery of housekeeping. There can be no question as to the inter-dependability of every element within the electrical industry. The success, or failure of one reacts immediately upon all the others. To help bring about a full realization of the truth of this statement is a definite function of our kind of journalism, and the publishers of the Journal of Electricity will work unceasingly to do its part in the accomplishment of this object.

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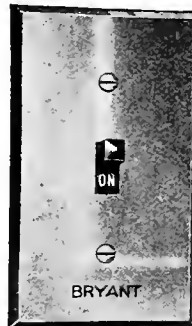
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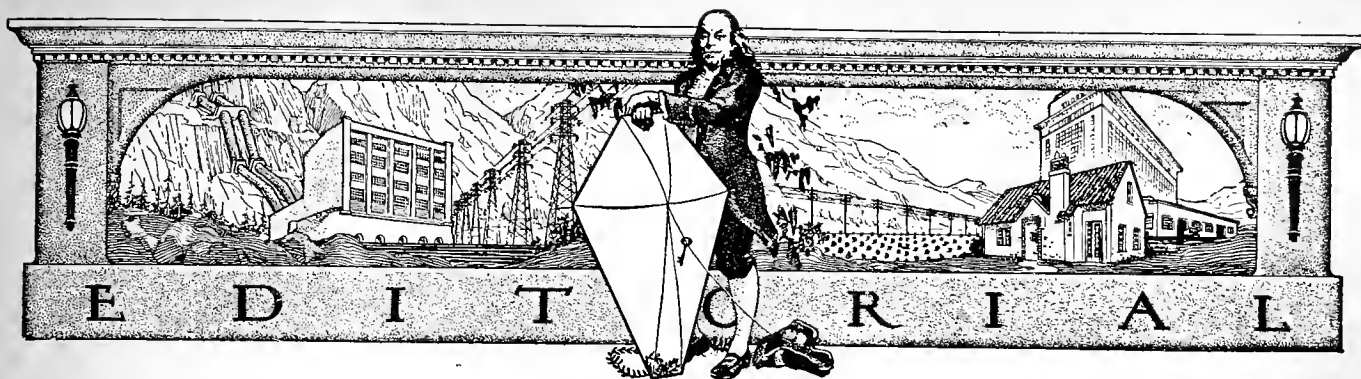
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The Limitations of Cooperation

MERCHANTS in every section of the West are being sold the idea of good lighting. So forcibly is its value being demonstrated before them by traveling exhibits, by lectures and by home grown samples of the art, that without any further solicitation whatsoever they walk out of the meeting and call on the nearest contractor for a bid to increase the wattage of their window displays.

ARCHITECTS are becoming sold on the electrical idea. The various cooperative leagues in this section of the country have studied the genius architect in all his aspects and are learning how to win his confidence. Even the shyest specimen will soon be so converted to the need for more electricity in the home that he will not only no longer shrink at the approach of the electrical contractor, but he will wish to keep one always with him for consultation when needed.

AS for the builder and contractor, that individual is competing to see who shall be known as building the most electric homes in town, while the owner—well, the owner has attended so many home electric exhibits and read so much effective literature on the use of electricity, that the only thing which keeps western communities from becoming all-electric cities is the fact that some pay envelopes reach only as far as a washing machine and do not yet include the possibility of an electric range.

EXAGGERATE? perhaps—and yet there is enough truth in it to illustrate the moral we are about to point. The electrical industry as a whole in the West has made great strides. To read of the programs outlined by the various cooperative movements is to be inspired with the confidence of certain growth. It is good

work these men are doing—and the electrical business is bound to reflect the results of their enterprise.

LET no electrical contractor-dealer think that this is the whole of the story, however. A generous amount of fertilizer may increase the crop—but only for the man who plants his seed and diligently cares for his young plants. What difference does it make if there is a kindly feeling toward convenience outlets on the part of the architect, provided you are not the man who installs the outlets or sells the appliances which are to be attached to them later?

NO other man can make a success of your business. The most any cooperative movement can do is to help remove the friction which impedes your movement in the field—it still remains with you whether you or someone else shall be the one to make the progress on the smoother highway.

HERE lies the danger of cooperative movements—that the individual may forget that the point of importance is not whether architects as a class are open-minded, but whether he has established a working basis with the architects with whom he deals—not whether builders are putting in convenience outlets, but whether he is the man whose friendly advice and later services are sought by the builder in his home town.

COOPERATIVE campaigns and leagues are great things. But the question of who is going to handle the business, the department store, the hardware store or the electrical dealer, and the still more important question of whether that electrical dealer is to be you, depends solely upon individual initiative.

Central Station Policy in Matters of Legislation

THE extent to which a public utility is justified in encouraging or discouraging legislation which is favorable or unfavorable to its interests is a point which is still unsettled in the minds of many central station executives. In an address before the recent convention of the Northwest Electric Light and Power Association, George L. Meyers, newly elected president of that organization, ably expressed his views as to the policy which the industry should adopt in matters of legislation. Mr. Meyers said in part:

"The policy of the industry in matters of legislation, both affirmative and negative, should be an intelligent, fearless and candid one. The industry should avowedly sponsor legislation which it knows and feels will be of constructive benefit to the public and the industry alike.

"The fact that much legislation of constructive benefit has not been enacted is due to a timidity in undertaking it and when undertaken to a lack of adequate preparation in advance in first getting the public generally informed. Those of us who feel reluctant to seek constructive legislation because obsessed with the fear of public prejudice should get out from under such obsession. The public utility, like all business enterprise, is made up of individuals who give of their service or capital. They have a right to representation and hearing and to expect a square deal from government in like manner as do other citizens.

"Our industry, which we know to be conducted upon a high ethical plane, subject to the utmost public scrutiny and owned in large part by numerous men and women who have invested their savings and surplus capital with a faith in our ability and integrity to defend, promote and preserve the stability of their investment, is entitled to the same fair treatment and equal opportunity as labor, agriculture and other interests which do not hesitate to openly promote and defend themselves in an organized manner. No ambitious politician has a right to capitalize our industry by unjust and untruthful attack for political aggrandizement. Let us get that fact firmly in mind and then let us combat that kind of opposition with a relentlessness worthy of our intelligence and character. We should let no opportunity go by to refute what we know is not true. We should not permit ourselves to meekly submit to what we know to be unjust, even if it seems good policy to do it in order that there may be a semblance of peace, because there is no peace founded upon injustice. What we need is a spirit that is more aggressive and combative.

"We are convinced that no industry is rendering a more useful and essential service, is operating with a greater public accountability, is evidencing a finer sense of public obligation or is conducting its business with a greater honesty. What many of us need is a courage and a will to promote and defend our business which are as resolute as is our conviction. When the people understand, they will treat us fairly."

Mr. Meyers' attitude is an admirable one. The policy of secrecy which has been followed on many occasions in the past in combatting inimical legislation is one which should be discouraged. The electrical industry has nothing to be ashamed of. Let it fight its battles in the open.

Why Not Know the Operating Cost?

SEVERAL electrical men in conversation the other day made the following surprising statements: (a) cooking by electricity is just as cheap as by gas, (b) cooking by electricity is more expensive than by gas but more convenient, and (c) it varies. Why should the electrical industry know so little about the actual cost of operating electrical appliances? Surely it would be a simple matter to make laboratory experiments—or household demonstrations—and determine exactly what it costs to cook the same food by gas or by electricity—or what one can operate a toaster for to meet the needs of the average family.

Several lists of operating costs are available, most of which could be worked out by anyone with a knowledge of the multiplication table, the appliance rating and the local power rates. It is of little value to the housewife, however, to know that the waffle iron will cost so much per hour to operate. She does not run her waffle iron by the hour. It would be of interest for her to know that she could bake twelve waffles for 1c. worth of electricity, or whatever it may be. Here are some of the points on which the housewife would like authoritative information: How will an electric water heater compare with a gas heater in cost of operation, if I use the same amount of water? What is the comparison between gas and electricity for cooking? How much will a washing machine cost for the average washing for my sized family? How much will it add to my bill if I use an electric percolator every morning to make six cups of coffee?

And so on. Some time ago a committee was appointed by the California Electrical Cooperative Campaign to obtain just this type of information, but it has never brought in a report. The opportunity still remains for some one to render an invaluable service to the electrical industry by compiling authoritative tables of current consumption under ordinary household conditions which may be applied to local rates and used to convince the customer that the electrical industry is in some measure familiar with the characteristics of the appliance it sells.

Tax-Exempt Securities Are Source of Danger to Public Utilities

FOR the electric light and power industry, the new income tax figures tell a plain story with a plain lesson. In one year the number of Americans paying taxes on incomes of \$100,000 decreased from 3,600 to 2,300. In every other tax paying class the number of incomes on which taxes were levied showed a similar decrease.

Every branch of government in the United States is practically inviting people to evade their taxes by seeking relief through investment in tax-

exempt securities. The governments, local, state and national, every day lay before the investor a great mass of their bonds with the statement: "If you hand over some of your money for these securities, we will see that you pay no taxes on the income you draw from the loan."

That many investors who are taxpayers do accept this offer and thus evade taxes is self evident. Meanwhile this tax burden is shifted to some other source and the electric light and power companies are forced to shoulder their share. Not only this, but these companies must work harder to secure the necessary capital for their construction programs.

In their customer ownership campaigns the utilities place their securities in the hands of the small investor, the man who will purchase five or ten shares of stock. The funds derived from such investors can not be counted upon to finance fully development and construction programs. The bulk of the funds must come from the large investor, yet he is the one who is turning to the tax-free securities.

On several occasions measures have come before Congress for preventing the further issuance of such securities. Another such measure will be acted upon at the next session. Here is an opportunity for the organized agencies of the light and power industry to participate in some constructive lobbying.

Freight Elevators and Window Displays

SAID the electrical dealer to his friend, as he walked him past his place of business, "What did you notice most in that window display?" "As a matter of fact," replied his friend, "I didn't notice. I sort of had one eye out for that open freight elevator and I forgot to look." How many people who pass your store are concerned with some obstruction on the sidewalk and miss entirely the thought and effort you have put into your windows? It is a well established fact that people will cross the street rather than go by a construction job, even where a special covered way is provided. A walk about town will bring out the surprising fact that there are many merchants who create construction job conditions before their own establishments without any further necessity than the thoughtless failure to remove barrels—or, for instance, to keep the freight elevator closed. It is an easy way to discourage business.

Public Relations on Paper

THE most important committee of most electrical associations is the one devoted to the problem of public relations. This committee makes a beautiful report yearly—its members make reports in between times, some of which are addressed to local electrical groups and contain much sound wisdom, some of which are published. There is, in fact, no one subject upon which the electrical industry thinks so soundly as it does on the matter of public relations.

But does it relate to the public? Are not most of its efforts devoted to telling the story of the im-

portance of public relations to itself, after which, on the principle of the man who has tried to get a telephone number and failed, it gains the impression that it has really accomplished something? How many of the power companies have a consistent method of telling their story to their consumers? Between aberrations of the legislature when there is no immediate dangerous legislation to be fought, how many of them think about lectures and literature and demonstrations? One power company official commented upon the fact that at a recent opening of a power plant in this territory, an occasion at which there were hundreds of people in attendance who had come to witness the spectacle at considerable inconvenience to themselves, there was not one so-called public relations specialist present. The power company in question, of course, was represented by its general manager—but no one of the higher officials of other companies in that territory attended.

Marriage, or any other human relationship, is dependent for success upon more or less continuous attention. A really friendly feeling on the part of the public is not to be brought about by a fusillade of campaign literature on the occasion of an emergency but must be based upon the feeling of confidence which comes from actual day by day friendly contact. The public relations specialist is not the man who can make a good speech on the subject—but the man who actually succeeds in making the contact with the consumer.

The Explanation of a Mystery

ONE of the unexplained mysteries of the ages is the phenomenon of the contractor who will submit a bid and execute the work at a figure less than his own cost. Why anyone should work for nothing and even on occasion make an additional present to the owner in actual cash value is difficult to explain. And yet any contractor who has studied costs carefully can tell you of jobs he has lost because the other man was willing to do the work at a price which his figures show must mean a loss. It is not a case of sour grapes—the man who got the work did run behind and in all probability a little later he retired from the contracting business at the request of his creditors.

Some of the mystery is explained by F. V. Mitchell in his article on the relation of overhead to material and labor costs which appears in this issue. The point is that the man who does work for less than it costs him is the man who does not know in the first place what it costs him. He knows what his material amounts to and what he pays his workmen, but he hasn't any conception of how to figure his overhead—or if he adds it at all, may be applying the percentage to the wrong figure. The moral is: If ever you begin to wonder why you didn't make as much money as you expected to on that last job or why, with plenty of work in the shop to do, you seem each month to be a little bit behind where you were the month before—why, look to your overhead, man, look to your overhead.

CURRENT COMMENT



Sacramento is far from a municipal power system. As pointed out in a previous issue of the Journal of Electricity (July 15, 1923, p. 64), this California city has taken advantage of the municipal utility district act and plans to embark upon a development scheme which will bring "cheap" hydroelectric power into the city and will attract "hundreds" of new industries. In the meantime there have been some interesting developments which throw a new light on the city's plans.

Sacramento Far From Municipal Power System

In the first place, the Federal Power Commission has denied the city's application for a preliminary permit to the water rights on Silver Creek until a series of hearings have been held. The Commission has taken this action in view of a license which has already been issued to the Western States Gas & Electric Company for a project on the South Fork of the American River. Until the city modifies its plans or reaches an agreement with the utility holding a prior right, no permit will be issued, the Commission states. The hearings on the matter will be held in San Francisco before F. E. Bonner, the Commission's district engineer.

However this is but a minor detail. Only preliminary steps with relation to the project can be undertaken until the people of the municipal utility district vote sufficient money to finance the development. It is estimated that \$8,000,000 will be sufficient for the initial project, \$4,000,000 of which will be used for purchasing the distribution systems of the utilities now serving the city and the remainder spent on construction plants, dams and reservoirs. It is hoped that sufficient data will be on hand to submit the bond issue to the people at the time of the general election in November. Presaging the action of the public when the question of voting public funds is at stake is a risky proposition. In the election which resulted in the formation of the district but one-fifth of the registered voters participated. While the majority was apparently overwhelmingly in favor of the formation of the district, who can say what action will be taken when bonds are to be voted? It might rightfully be said that only the proponents of the project participated in the recent election, those opposing it feeling safe in the knowledge that nothing could be done without passing the bonds.

In the meantime the directors of the district have asked the State Railroad Commission and the utilities for valuation figures for the distribution

systems inside the district, at the same time threatening condemnation suits should the utilities fail to comply with their wishes. But despite all of these developments the joker is still in the deck and the joker in this case is the sanction of the people on the expenditure of public funds.

California has the distinction of being the first state in the Union to undertake a detailed inspection of all overhead electric utility facilities, with the view to eliminating improper and hazardous construction, as a matter of protection to the public, to the utility workers, and for the maintenance of safe and efficient

California's Overhead Line Inspection

service. This immense task was delegated to the Railroad Commission by the California Legislature, through the enactment of Chapter 499, Statutes of 1911, as amended by Chapter 600, Statutes of 1915, which charged the Commission with the inspection of all overhead electric facilities as to their compliance with the provisions of the law, providing for safe and efficient construction.

The work has been under way for approximately one year, in which time the state from Sacramento south has practically been covered. This area includes the facilities of more than fifty electric utilities, more than 500 cities, and a large number of industrial services. Upwards of 75,000 miles have been covered by the inspectors of the Commission in the pursuit of the work. Completion of the preliminary inspection, and the final inspection itself will require two years additional, it is estimated.

The Commission has felt that the greatest hazard to workmen and the public existed in the facilities of the power and traction utilities, and with this in mind, inspection has been made of these properties before any attempt to look into the facilities of the telegraph-telephone and other signal companies. Excepting in the case, therefore, where in making inspection of supply lines a particular hazard is discerned in the signal lines, such as their location of proximity to the supply line, the inspection of signal facilities will not be made, until the completion of the inspection of the power facilities.

From data gathered in the field the Commission is enabled to make an accurate estimate of the cost and time necessary to make the correction in existing construction, and this information is incorporated in the decision which the Commission hands the utilities after the completion of the preliminary inspection. It is contemplated to make a final inspection of

the facilities at the expiration of the time allowed in the decision.

While on the work of inspection it is also the business of the inspectors to acquaint the field men of the utilities with the interpretations of the Commission of its General Order No. 64, which became effective July 1, 1922, and which is a more detailed ruling on the construction of overhead lines. This, together with the safety to workmen and the general public, as well as the improved service assured by a better mode of construction of lines, makes the inspection now being carried on of utmost importance to everyone in the state, and is being received as such by everyone connected with the electrical industry.

Declaring that the trade association as a facility for the promotion and self-regulation of industry and commerce has become, by reason of its scope and

Hoover Speaks on Trade Associations

activity, an important American business institution, with which the public, generally speaking, is little acquainted, Herbert Hoover, Secretary of Commerce, in the introduction to that Department's new book entitled "Trade Association Activities" released recently, expressed the opinion that the constructive purposes of these organizations have unfortunately been confused with the minority of activities which have been used as a cloak for action against public interest.

"Just as a business house or an individual meets its obligations and carries on its daily relations within the community, so the trade association has a real individuality in the business fabric," according to Secretary Hoover. "All trade association activities are not good, just as all individual habits are not good until so proved by their reactions on the individual and the community," the Secretary says, adding that "perhaps the best way to guide activities into the most constructive and profitable channels is through thoroughgoing analysis and examination of those activities which seem on the surface to be constructive in their application and results."

On the subject of statistics, Secretary Hoover says, in part: "There is no question but that the curves in the business cycle from activity to depression have been less disastrous in those industries or trades where accurate, lawful statistical data have been available to all. Fundamentally it is impossible for business men to form those vital judgments as to their future course of action in the wise and safe direction of their activities unless they are informed as to the changing currents of production and consumption, not only in their own lines but also in other lines of business, which indicate broader currents of economic life. The only criteria are statistics and if industry is to march with reasonable profits instead of undergoing fits of famine and feast, if employment is to be held constant and not subjected to vast waves of hardship, there must be adequate statistical service. Whether these services

are to be maintained by the Government or by trade associations, they must be maintained if we are to have an orderly economic life."

Discussing legislative activities, Mr. Hoover asserts that "The interests of any one industry or trade, to be sound in the ultimate analysis, must be the public interest and in their legislative activities many trade associations have borne this axiom foremost. The demand of legislatures for the views of the different trades upon all sorts of questions of public interest is incessant, and the open preparation and presentation of such matters is far more consonant with proper development of public life than the private lobbying of the few or powerful.

"Waste elimination, in a vast area of problems, can only be accomplished by collective action in a trade. Hundreds of millions of dollars have been saved through the adoption of principles laid down in such programs, not alone to the business groups concerned but to the ultimate consumer. They have brought about lower prices, through attacking directly the costs of raw material, inefficient plant operation, and unnecessary stock maintenance."

With reference to cost accounting activities, Secretary Hoover pointed to the "truly remarkable findings of Government agencies in the war years regarding the knowledge and understanding of costs in production and distribution. Losses often were confused with profits, those investigations showed, all for the lack of knowledge of the fundamentals of cost accounting. Today, the trade association is proving itself the most potent organized influence in the study of costs in industry and trade, aiming towards standard systems applicable to peculiar conditions. All of which tend to more scientific knowledge of business and ultimately lowered costs."

On the subject of employee relations, the Secretary indicates, that while at earlier periods the individual business concern or manager, perhaps, has taken more frequently the initiative in forward policies of such relations, trade association after trade association is now developing the necessary preliminary stages of more equitable and advanced phases of this subject. In most cases it is largely a matter of research into the tremendous problems involved—selection of personnel, education, welfare work, accident prevention, employment principles, and collective agreements. In the opinion of Mr. Hoover, the association will recognize that in the years of devotion to improving the processes of production and distribution there has been great oversight of the human factor and its mass relation. "Shall it be approached blindly and without preparation and knowledge?" the Secretary asks, answering, "Not if the present-day indications of trade association activity have real meaning."

Credit and collection activities, trade disputes and ethics, insurance, public relations, traffic and transportation, commercial research, industrial research and government relations are among the other subjects discussed by Secretary Hoover in the introduction to the book.



AN attractive store front and carefully planned window displays are two of the determining factors in the success of the contractor-dealer. If he intends to merchandise the goods with which his store is stocked he must be a merchant. The appearance of his store from the street is his card of introduction to the public. The store depicted below is that of a highly successful contractor-dealer and its very appearance shouts success. In the window shown above the contractor-dealer has made an effective play on the trade name of the product that he has placed on display.



Better Merchandising Suggestions

By Arthur L. Spring
Merchandising Specialist,
General Electric Company, Los Angeles

NO electrical dealer is so perfect but that he can learn something from the manner in which the other fellow conducts his business. In this article Mr. Spring outlines some of the successful merchandising principles which have been practiced by electrical dealers up and down the Coast.

THIS is an age of intensive merchandising. Competition in every line is exceptionally keen and it is vitally necessary for the electrical dealer to pay ever increasing attention to merchandising. The dealer who opens a store and expects sufficient business to come to him cannot succeed in this day. He must, through various forms of advertising and through solicitors, actively go out after the business. His merchandising must be constructive and creative. There are numerous ways of building up electrical retail business and many of the best ideas of merchandising can be obtained from other lines of business than our own. Successful merchandising schemes followed by department stores, drug stores, hardware stores, etc., may often be applied with equal success in the merchandising of electrical appliances.

Other merchants spend large sums to make their store fronts attractive. There is no reason why the fronts of electrical stores should not be made as attractive as the best. The store front and the show windows give the passing public either a favorable or an unfavorable impression. The more attractive they are the more favorable the impression, and consequently the larger the volume of business for the merchant. The accompanying photograph shows an attractive front of an electrical store. The investment in this store front has proven to be a profitable one.

There should be an electric sign on the front

of every electrical store and the show windows should be excellent examples of proper show window lighting. The illumination of the store should also be an example of the best in store lighting. The dealer must practise what he preaches. The contractor-dealer, who has installed and used effectively proper show window lighting with various color screens, demonstrates to the other merchants

through his windows the value of an up-to-date show window installation. When he interests a merchant in show window lighting he has an excellent opportunity to close his prospect by an effective demonstration with his own show window. The best show window installation can often be fully paid for in a few months from the profits in the additional business it will secure for the contractor-dealer who is alive to this opportunity.

There is no phase of the electrical business that is improving more rapidly than show window lighting. The development in this line is remarkable. A few years ago we hesitated in recommending for show windows a foot-candle intensity of ten or twelve, while now we confidently advise 40 to 100 foot-candles, and there are now installations giving as high as 2,000 foot-candles and obtaining extraordinary results. The possibilities in show window lighting business are great and the proper installation by a contractor-dealer is both a valuable means of securing this business and splendid merchandising in effectively showing the goods he sells. The im-

portance of good window displays is evidenced by the fact that some of the largest department stores spend over half a million dollars annually on their show windows. A study shows that half of the rent the average merchant pays is for his show windows.

The proper illumination of the contractor-dealer's store likewise will materially assist him in building up his store lighting business, and at the same time be of much direct value to him by building up his retail business.

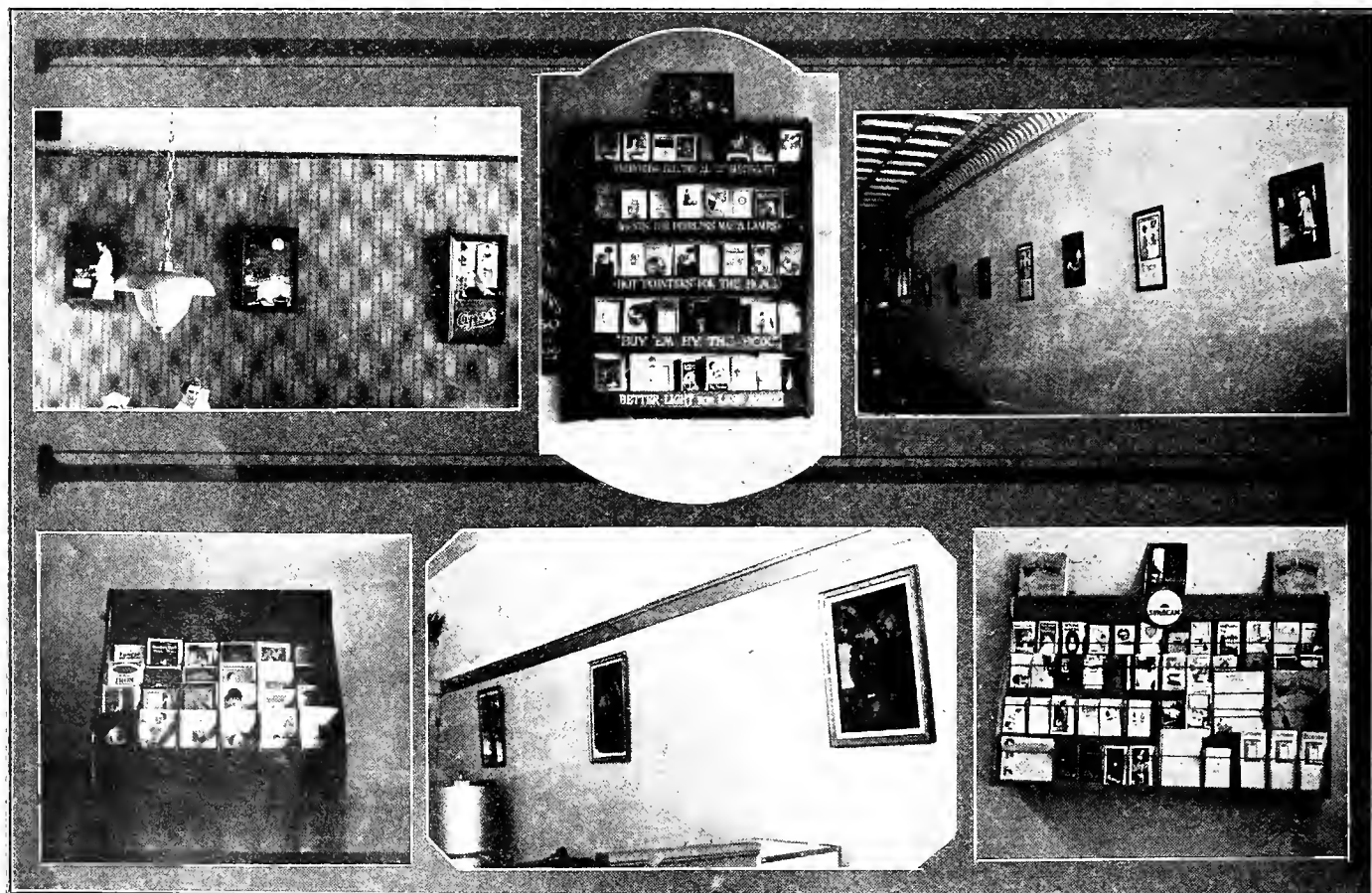
The general appearance of any store has much to do with its success. Electrical appliances make attractive displays and the wise electrical merchant is the one who makes his entire store a display. The displays of larger appliances and the table displays of smaller appliances within the store should be changed occasionally for best results. On one side of the store where large appliances are displayed the floor of the show window should be the same level as the floor of the store, and there should be no division between the show window and the store. This helps to make the entire store a display and offers the best condition for window demonstrations of appliances. And these demonstrations in the dealer's show windows offer an excellent means of increasing the retail business.

The appearance of the persons waiting on the customers is very important. There is no doubt that many women avoid buying in electrical stores, whenever they can purchase elsewhere, due to the fact that they have in some electrical stores been waited

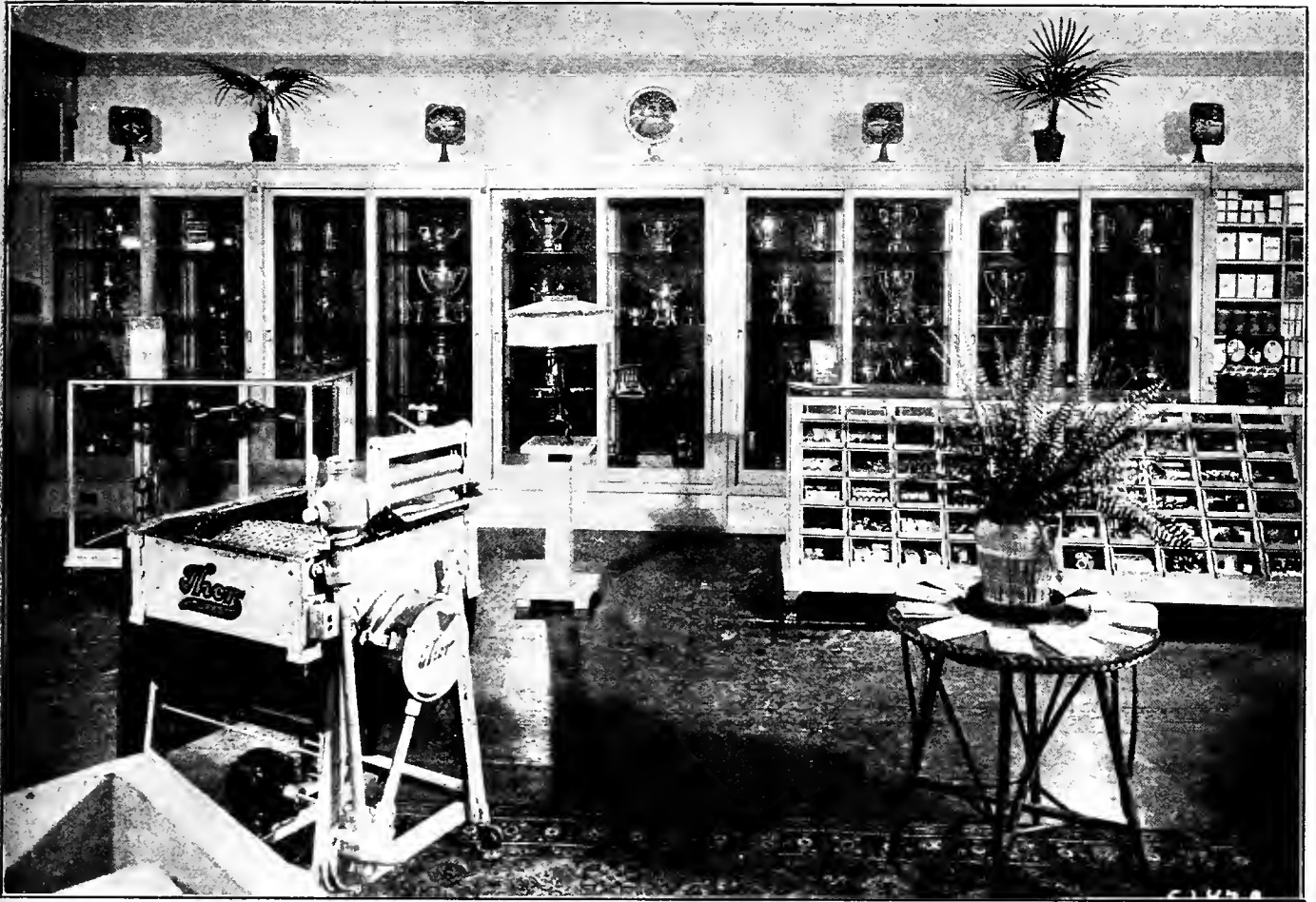
on by men in mechanic's clothes or with their coats and collars off and their shirt sleeves rolled up, while in other stores their requirements are cared for by persons in the neatest of dress. This makes a great deal of difference to women and as a large percentage of business in electrical stores is done with them, this point must be given more serious consideration in the future than it has in the past.

One of the best means by which the electrical merchant may increase his business is in the effective use of manufacturers' advertising literature. Many attractive booklets, folders and envelope stuffers are furnished the electrical dealer with his imprint and without charge. If properly used these offer an exceptionally good means of advertising at the lowest possible cost.

Every electrical store should have one or more advertising or publication display racks which hold neatly an assortment of advertising literature descriptive of the lines he handles. These racks should be placed in a conspicuous location in the store, especially convenient for their frequent use. Several such racks are shown in accompanying photographs. One is a rack which any dealer can make or have made to suit his requirements, and the other one can be purchased for about one-half its actual cost from one of the manufacturers. Customers should be encouraged to take the publications which interest them, and every clerk should be instructed to give all interested prospects a folder or two descriptive of the appliance in which they are interested.



The proper utilization of manufacturers' literature is an important factor in good merchandising. The above views show display racks for booklets and stuffers and the manner in which a store interior is beautified by framing and properly hanging some of the literature.



Note the effective manner in which appliances are displayed in the cases along the wall of this store. Also note the notion case which holds many of the smaller devices for which there is a constant demand and which are difficult to display.

An assortment of several folders should be wrapped in every package handed over the counter or delivered to the customer. The easiest way to do this is to select three or four folders most suitable, unfold one and fold it over the others. This makes a unit of all of them so that when placed conveniently under the wrapping counter they can with utmost ease be placed in each package. The easier this is made the more booklets will be distributed and the more business result. This distribution of folders is effective because the customer who has bought the appliance with which the literature was wrapped is psychologically in a mood to be interested in things electrical. She has just given consideration to electrical appliances, and the appliance just purchased will give such good service that she will as a result be interested in other appliances and probably purchase from the dealer whose imprint is on the literature she receives with the package.

There are, of course, many other ways in which these folders can be used to advantage. No letter, invoice or statement should ever go out from an electrical store without a stuffer enclosed with it. At exhibits and shows this literature can also be used with good effect.

Electrical manufacturers furnish the dealers with many attractive advertising cards of different sizes illustrating the various appliances. These can be used to advantage in show windows, stores, exhibits, etc. One of the most effective uses of these

is shown in an accompanying photograph. Many dealers' stores have barren walls which give the store the appearance of a barn. These walls can not only be made attractive, but as well, be made an effective advertising medium by neatly framing choice manufacturers' cards and hanging them like pictures on the wall, as this dealer has done. Another photograph shows how a dealer has framed and hung as pictures some striking calendars furnished by an electrical manufacturer. These materially improve the appearance of the store and effectively advertise a product the dealer sells.

Many times far too little care is taken by the electrical dealer in the selection of his wall cases and show cases. This equipment should not only be attractive, for it has a great bearing on the general appearance of the store, but the wall cases and show cases should be as efficient silent salesmen as it is possible to make them. The accompanying photograph shows some exceptionally attractive wall cases equipped with plate glass shelves and a dark green plush background. The appliances are certainly shown to best advantage in them.

A great many electrical dealers have for some time been at a loss to know how to best stock and display the numerous small electrical devices for which there is a regular demand and which make a rather untidy appearance on the shelves. In some cases they have been placed behind wood panel doors, at other times special drawers or boxes have been

installed for them. But there is a far better way to carry this material—one which not only handles it efficiently, but at the same time makes an effective display of it. The notion show case, shown on the right of the accompanying photograph, is the answer to this problem. It is a regular show case equipped with many drawers and ideally arranged for these miscellaneous small articles of every electrical store. The eight-foot notion case has 60 drawers. One electrical dealer has to advantage put neat partitions in each drawer, thereby stocking and properly displaying 120 items in an 8-ft. show case. The surplus stock of some of these items is carried in the stock room in the rear and the show case stock replenished regularly from there. The use of such a case allows the store to be more attractive and, by effective display, increases the sales of these items, which carry a good profit, and for which there is a constant demand. For radio parts such a case is also most valuable. One, or more, of these cases should be included in the equipment of every electrical store.

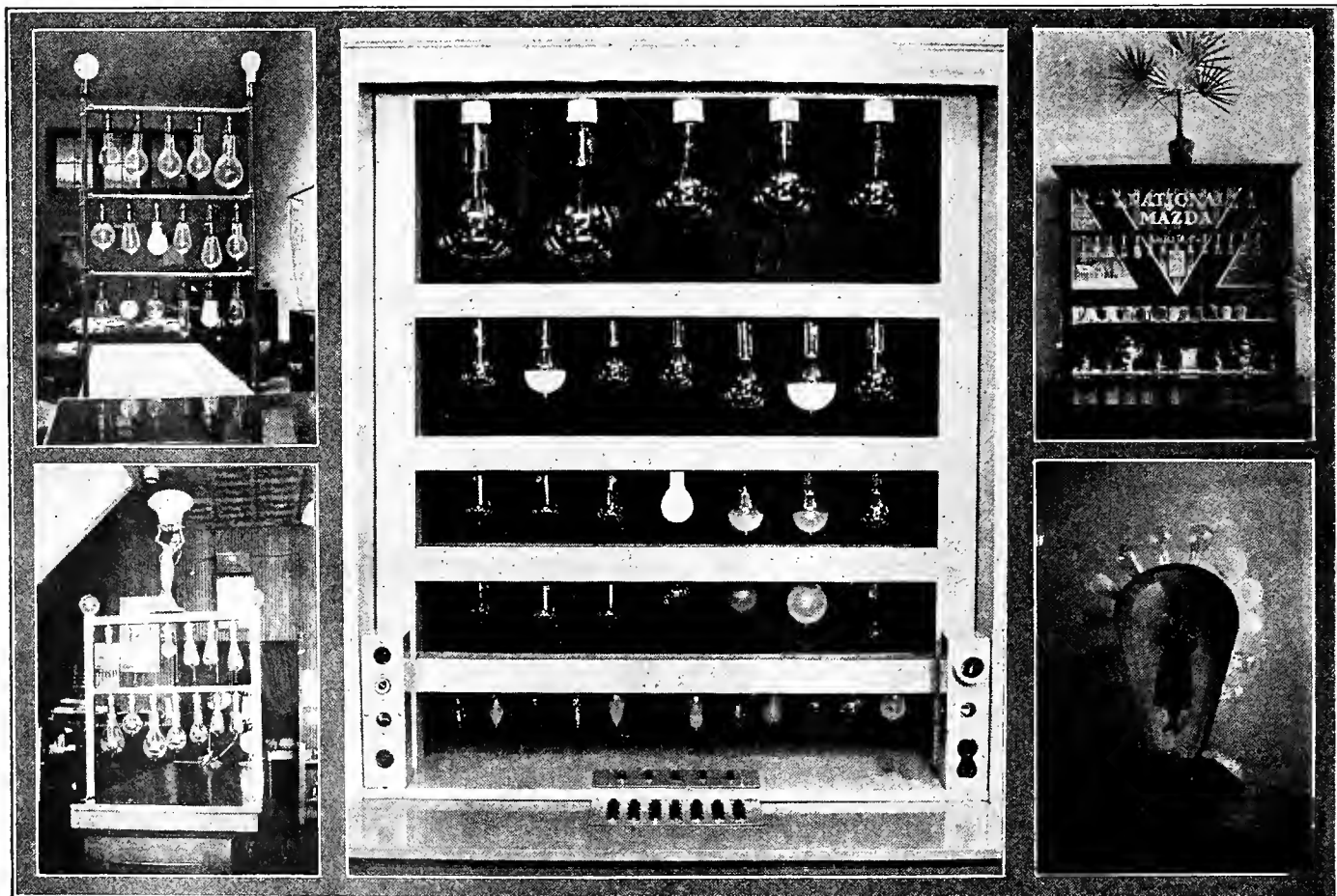
Electrical dealers should realize that the Mazda lamp is the hub around which the electrical retail business should revolve. There is no item so vital to the success of electrical retailing as the Mazda lamp. It is the only item of importance that is sold to the same customer over and over again. Lamps bring customers into the store regularly and the dealer who gets their lamp business, practically always gets their other business. Dealers should take advantage of every opportunity to build up their

lamp business. It is the key to the success of electrical retailing. Show me the dealer who is doing a good lamp business and you will show me the dealer who is making a success of his retail business.

In arranging the store, care should be taken in locating the lamp stock. The lamps should be placed toward the rear of the store so that customers will be brought through the store as much as possible. This is good merchandising practice. The same principle is followed effectively by department stores, who are recognized as the most successful merchants in the country. The goods which they sell the most are always located so that customers have to come through much of the store to purchase them. It will pay the electrical merchant to properly locate his lamp stock.

One of the best means of increasing the lamp business is by the effective use of a lamp display rack. These can either be made by the dealer, or purchased by him from practically all of the Mazda manufacturers. One of the accompanying photographs shows a lamp rack that can be easily made of conduit and painted, or sprayed, to match the finish of the woodwork and store fixtures. This rack can be placed to advantage crosswise of the counter in front of the lamp stock. Each lamp in this rack is turned off and on at the socket.

Another lamp display rack shown is made in the shelf space. This is attractive and effective and each lamp is controlled by push buttons located at the base of the rack.



Lamps can be displayed in any number of fashions. Four of the above racks were made by the contractor-dealer while the one in the lower right hand corner is furnished by the manufacturer at a nominal price.

Lamp displays like, or similar to, the third one shown can be purchased at about one-half their actual cost from lamp manufacturers. Lamps in this display are controlled by tumbler switches located beside each lamp socket. Such a display should be placed on the counter, or show case, in front of the lamp stock.

No electrical dealer can afford to be without some effective lamp display rack for it will materially assist him to better serve his lamp customers, improve the appearance of his store and let everyone who comes in know that here is the place to buy lamps.

The electrical dealer who interests himself in the merchandising principles and practices which have been successfully developed by other merchants is the one who is going to prosper. The suggestions outlined in this article are but a few of those whose success has been demonstrated. Study your goods, study the methods employed by the other fellow and endeavor in every way to become a better merchant, an excellent representative of the products you handle and a splendid server of the buying public.

Cost of Enclosed and Open Wiring

FEW cities or towns are without a legally established electrical code, supposed to provide against all contingencies, at least to a reasonable extent. All of these codes provide for authorized inspection, and electricians generally respect their provisions. The trouble arises from the fact that these codes provide solely for the safety of the wiring at the time it is inspected, or perhaps for a reasonable degree of assurance that short circuits and overloads will not occur naturally. They cannot and do not provide against experiments by the owner or occupant with a handy turn and just enough knowledge of electrical details to make him dangerous. Nor do they provide for the thousand and one emergencies that are sure to confront every electrical installation during its lifetime, unless it is protected against injury, changes and extensions by the unskilled.

These are conditions which probably prevail in four-fifths of the houses in this country enjoying electric service. They are not the fault of the industry, so much as that of the public. They could be avoided by the use of rigid conduit or a good armored cable, but the cost would be greater, and the average contractor finds that his customers insist on the lowest possible cost. Nevertheless, if the actual difference in the cost of open wiring and that in which a thoroughly good armored cable is used were more generally known, it is certain that architects and electrical contractors would more strongly recommend wiring for small residences. The smaller home is the most important unit from this standpoint, because more expensive buildings are generally wired with rigid conduit, architects and engineers understanding the necessity for protecting wires in these structures and the restrictions as to cost being less exacting.

With a view of securing reliable data on this subject, one of the manufacturers of armored cable

recently arranged for the wiring of two similar houses—one with knob and tube and the other with armored cable, and kept an accurate and detailed account of the relative cost. The houses selected were two-family dwellings, of fairly good type, arranged with five rooms and bath on each floor and having a cellar and attic. Each room has a suitable opening for ceiling light, and provision was made for side lights in the bathrooms. Baseboard and porch light openings were located conveniently. The work in both houses was done by the same men, and the number and location of openings is identical.

Actual cost of the two types of wiring is given below. It should be stated that the workmen were unfamiliar with armored cable, this being the first new job on which they had used it exclusively, and the item of labor on the cable job is therefore probably higher than it might have been otherwise:

JOB NO. 628 — KNOB AND TUBE		
3707-09 Cecelia Ave.		
1,430 ft. No. 14 Wire		\$ 8.58
330 ft. Loom		4.95
300 Knobs		2.67
300 Tubes		1.20
40 6-in. Tubes .....		.32
16 1-Gang Boxes		1.20
3 2-Gang Boxes .....		.45
2 3-Gang Boxes .....		.48
40 ft. Speaking Tube		1.04
7 Speaking Tube Ells .....		.24
115 ft. Bell Wire .....		.55
20 Hours Labor		22.00
Permit		2.80
15 ft. No. 12 Wire .....		.13
400 ft. No. 14 Wire		2.40
60 ft. Loom .....		.90
3 Cabinets .....		.96
3 2 Circuit Boards .....		.90
75 Knobs .....		.67
100 Tubes .....		.40
20 6-in. Tubes .....		.16
8 Base Receptacles and Plates		2.32
15 Single Pole Switches		2.80
4 3 Way Switches .....		.92
2 Mouth Pieces .....		.24
1 Door Lock		1.65
2 Transformers		1.45
5 Push Buttons .....		.90
2 Bells .....		.82
2 Buzzers .....		.78
8 1-Gang Plates .....		.88
3 2-Gang Plates .....		.63
2 3-Gang Plates .....		.66
12 Hours Labor		13.20
		\$80.25

JOB NO. 116 — ARMORED CABLE		
3711-3713 Cecelia Ave.		
808 ft. Wire Realflex		\$36.36
57 B. X. Conductors		2.05
8 3-in. Outlet Boxes, 1/2" K.O. ....		.86
1 Concealed Receptacle .....		.19
3 2 Circuit Boards .....		.90
3 6 x 8 Cabinets .....		.96
2 Bell Transformers		1.45
20 ft. Loom .....		.30
35 ft. No. 12 Wire .....		.29
50 3 Wire No. 14 Realflex		4.30
10 1/2-in. Straps .....		.05
14 2/8-in. Straps .....		.05
17 Hangers		2.30
10 B. X. Boxes		1.50
12 H. H. Boxes No. 1101		1.35
3 2-Gang Boxes No. 902 .....		.54
17 Shallow Ceiling Pans 4" x 1"		3.06
31 Copper Connectors		2.79
1 1/2 lb. Bell Wire .....		.55
28 ft. Speaking Tube		1.04
8 Ells .....		.24
23 Hours Labor		25.30
Permit		2.80
8 Base Receptacles and Plates		2.32
15 Single Pole Switches		2.40
4 3 Way Switches .....		.92
8 1-Gang Plates .....		.88
3 2-Gang Plates .....		.63
2 3-Gang Plates .....		.66
2 Mouth Pieces .....		.24
1 Door Lock		1.65
5 Push Buttons .....		.90
2 Bells .....		.82
2 Buzzers .....		.78
8 Hours labor finish		3.30
		\$104.71

Percentage of Overhead Expense to Material and Labor Costs

By F. V. Mitchell
Accountant, San Francisco

AS a result of extensive investigation and system work, I am thoroughly convinced that the most vital necessity toward successful operation in the electrical contractors and dealers' industries is a correct knowledge of the percentage of overhead expense to material and labor costs by each and every firm engaged in this line of work. The reason for this appears so self-evident that it should seem unnecessary to have to dwell to any great extent upon its relative importance, but it is truly surprising to learn of how comparatively few operating in this mammoth industry are in possession of such valuable information. A great many seem to be content with the obsolete business method of guess work on this point instead of actual facts easily ascertainable from a properly outlined accounting and operating system.

The electrical contractors who do not know the correct percentage to add to their estimated material and labor costs to cover the overhead burden that the jobs are going to have to carry are invariably the ones who put in the extremely low bids for contracts, which are naturally accepted in the competitive market, and just as invariably their work results in a net loss to them after the completion of the jobs instead of the legitimate profit to which every firm in any line of business is justly entitled.

Electrical contractors should have their accounts properly subdivided so that at the end of each closing period the exact amount of overhead expense incurred during that period may be shown. The correct percentage of overhead expense to material and labor costs can then be ascertained through the simple arithmetical method of long division, viz., dividing the total amount of overhead expense by the total amount of material and labor costs. This percentage as shown should be added to the estimated material and labor costs on all jobs figured in the following period to cover the overhead or burden that it is reasonably certain these jobs will have to carry. After adding the correct percentage of overhead and arriving at an estimated job cost including overhead, a proper percentage should then be added to that amount to make a contract price that will net a fair margin of profit for the work. By the use of this safe and sound method the correct amount of overhead will be included in the estimated cost of every job and it is then an assured fact that whatever percentage is added thereon to arrive at a selling price will result in a net profit for the work instead of the inevitable net loss that always follows in the wake of guess work as to overhead.

The use of a fixed percentage for overhead applied without differentiation to all jobs, merely because John Jones across the street uses this figure,

is a somewhat dangerous practice. The actual overhead costs of the contractor may be larger than this amount, in which case he will be losing money—or, on the other hand, he may be doing business at a lower cost than his competitor—which means that he is losing the advantage of the lower bids made possible through his greater efficiency.

Another very serious and costly blunder being made quite frequently is the confusion of the percentage of overhead to sales with the percentage to material and labor costs. In the course of my work in the industry I have been informed by electrical contractors that they have been adding a certain percentage to material and labor costs supposedly to cover their overhead fully and have found upon investigation that the percentage being used was in reality the percentage of overhead to their sales and not to their costs, the former naturally being very much lower than the latter. To point out the difference more clearly I am referring to the following example of a profit and loss statement in round figures:

Net Sales	\$100,000	100%
Less Material and Labor Costs	65,000	65%
Gross Profit on Sales.....	35,000	35%
Less Overhead Expense.....	25,000	25%
Net Profit from Operations.....	\$10,000	10%

The percentage of overhead expense to sales as shown in the above illustration is 25 per cent, whereas the percentage to material and labor costs is 38 per cent, therefore, it can now be readily seen that 38 per cent would have to be added to material and labor costs to cover overhead in this instance and not 25 per cent—a mistake which, as I have noted, is quite often made through confusion of the two percentages.

The overhead expense of a business should always include a reasonable salary for the proprietor as he performs duties necessary to its successful operation and remuneration for his services must accordingly be shown as an operating expense. Other principal items of overhead expense are advertising, automobile expense, bad debts, depreciation of equipment, insurance, light and power, rent, salaries and wages, stationery and printing, taxes and licenses, and telephone (the caption of salaries and wages not to include labor charged for directly on jobs).

One of the most important steps that can be taken by the electrical contractors and dealers in the Pacific Coast states toward the solution of their present day problems is the installation of a uniform accounting and operating system that will furnish them the proper information as to the results of their operations in time to adopt the logical corrective methods necessary to stabilize the industry.

Who Shall Write the Electrical Specifications?

By A. L. Nudd

Electrical Engineer, Allied Architects Association of Los Angeles

VITAL to electrical progress is the proper application of electrical principles to the building industry at large. The question immediately arises, "Who shall dictate the manner of making such application, the architect, the contractor or the engineer?"

A well laid out plan and rigid specifications should put all bidders on an equal bidding basis, assure uniform bids from the contractors who conscientiously figure their work, and establish the contractor's profits, fulfilling a gap in the contracting field. Complying with all the owner's requirements, it minimizes the contract extras, definitely fixing the appropriations. Such specifications, when properly enforced by the architect, lessen his time required by that particular phase of the building, all of which tends toward establishing a harmonious relationship between the owner, architect and contractor, and results in a boost to the electrical industry.

The progressive and successful architect of today is obliged to have a general knowledge of the various phases of building construction and is not proficient in all details thereof, yet he realizes the place an efficient electrical installation holds in the building he is projecting and seeks the services of a specialist to accomplish that end.

One of the principal prerequisites in the training necessary for the engineering of the electrical installation is the constant study of the electrical material market, for its prices, quantities readily obtainable, new equipment, and the relative merits of each article. This study is what makes the successful contractor and electrical engineer. The architect hasn't time for studying the materials in every building trade. The electrical engineer by cooperating with the material men, keeps abreast with the markets and obtains announcements ahead of the contractor.

The electrical engineer is familiar with the purpose of the building, he is trained in its electrical requirements and has a working knowledge of the installation of the

equipment. The contractor is not familiar with either the purpose of the building or its requirements, yet he is thoroughly familiar with the installation. Each has his place in the completed project.

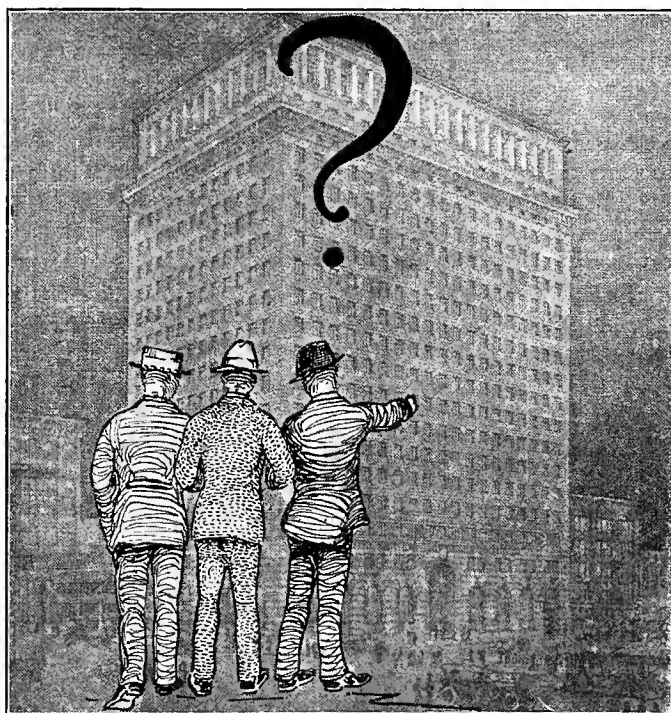
There are but few contracting firms who are equipped to handle engineering problems, since they haven't on their staffs men who are skilled in drafting and specification writing. The electrical engineer has his organization built up for that particular purpose.

During the progress of the building it becomes necessary for the architect to check the specifications against the installation, and again he is obliged to call upon the specialist. The electrical engineer being familiar with each item of the electrical specification he has written, stands ready to assume the inspection duties and render an unbiased opinion in case of dispute.

The owners' problems of financing a building demands of the engineering features efficient yet economical equipment. Due to keen competition, the contractor's tendency is to specify material from which he can obtain the greatest profits, or that which his competitor cannot supply. The electrical engineer specifies his material with the whole electrical industry at heart and an efficient installation in mind.

The contractor's usual compensation for writing the electrical specifications is an obligation on the part of the architect which is a policy better judgment would dictate against. Experience proves the engineer's percentage fee compensation the more desirable.

Certainly the electrical specifications should be written by a specialist—one trained in that particular phase of the industry. The electrical engineer fulfills this requirement, he is familiar with the purpose of the building and its requirements, has his organization to handle the work, is ready to render an unbiased opinion, his services assure economy, and he receives the compensation for his services to which he is justly entitled.



Architect, Engineer or Contractor—which?

The Contractor-Dealer as a Credit Risk

By Rey E. Chatfield

Secretary-Manager, Electrical Service League of British Columbia

INTERPRETATION of the term "credit risk" by credit men in the electrical industry is likely to differ in various communities but generally one finds the accent on the word "risk" rather than on the word credit. The contractor-dealer is deemed a distinct risk by most credit men, which opinion is based on his ability to meet his obligations promptly when due. Pessimism in wholesale circles which might prevail under these conditions is more or less softened by the fact that each community boasts several contractor-dealers who not only succeed in doing a comparatively large volume of business, but who discount their bills promptly. This adds considerable brightness to a situation that might otherwise be very discouraging.

Unfortunately, where one such contractor-dealer is in business there are nineteen or twenty who pay their bills with greatest difficulty provided they enjoy the privilege of credit at a wholesale house at all, or who must pay cash over the counter for such merchandise as they purchase. Sixty days, ninety days, or even longer time is allowed such dealers and they seem to be but one jump ahead of bankruptcy. This being the case there must be something radically wrong with an industry or branch of an industry that produces such an unfavorable credit condition.

The Four Classes of Retailers

An understanding of the problem can only be reached by an analysis of the contractor-dealer branch of the electrical industry. The retail distributor branch of the industry can roughly be divided into four classifications:—

- First: The electrical dealers.
- Second: The electrical contractor-dealers.
- Third: The electrical contractors.
- Fourth: The non-electrical distributor.

The fourth class of retail distributor is not of serious concern to credit men in the industry because he is generally a successful merchant distributing other lines of merchandise. He enters the electrical field because he is attracted by the possibility of profit in distributing electrical goods. His business is confined to the sale of various appliances and his experience as a merchant teaches him the need for careful buying and rapid turnover of stock. Other departments in his store may help pay the electrical wholesaler's bill, but what the credit man is interested in primarily is the merchant's ability to meet his obligations when due and not whether the sale of electrical merchandise paid the bill.

The first classification, viz., the electrical dealer, is usually a specialist, that is, he pushes some particular electrical merchandise, it may be washing machines, it may be vacuum cleaners or ranges. However, the fact that he can sell aggressively a particular piece of merchandise successfully as a

specialty stamps him either as a splendid salesman or a shrewd advertiser or a combination of both. Such electrical merchandise as he may sell other than his specialty is incidental. His firm makes no wiring installation and a sale means either a cash transaction or a part cash and part negotiable paper transaction which serves very well to meet the demands of the credit man.

Such a dealer's credit is good and he pays promptly until he lends an attentive ear to the salesman with a long discount on a quantity purchase. If the average electrical dealer makes such a quantity purchase he automatically moves himself and his firm from the list of customers at which the credit man smiles to that list which produces a frown and lines of worry in every credit man's brow. Any electrical dealer who purchases a quantity of merchandise sufficiently large to cut down his rate of merchandise turnover below four turns per year is making trouble for himself and for the credit man of his wholesale house.

Quantity Purchases Bring Difficulties

There is a double responsibility for the dealer who gets into financial difficulties by making a quantity purchase for a longer discount which will cut down his rate of turnover even one turn per year. That dealer showed lack of real merchandising knowledge, but the manufacturer or jobber who permitted such a sale to go through justly earns the difficulty he may have in collecting his account. The average electrical dealer has limited capital and any unusually large or quantity purchase soon ties up his liquid assets in slow moving merchandise. No matter how promptly he may have paid his bills in the past, when his available capital is tied up in merchandise which takes time to move he becomes "slow pay" and a poor credit risk.

The second classification, viz., the electrical contractor-dealer, is perhaps the best and at the same time the worst credit risk in the branch of the electrical industry under discussion. This comprises the largest group of the four classifications. The contractor-dealer merchandises appliances and also makes electrical wiring installations. His path is fraught with all the dangers of the exclusive electrical dealer but he has in addition the gamble of estimating and installing electrical work for a predetermined and fixed price. As a merchant he is selling merchandise with little diversity in types of articles offered; in other words, electrical merchandise is a short line. The limited scope offered for the merchant places the electrical contractor-dealer on a par with other exclusive shops such as a ladies' ready-made apparel shop or a man's hat shop. Unfortunately for the contractor-dealer, the policy of a fixed resale price on appliances does not give the dealer sufficient margin to profitably conduct his

business. Conditions such as these force the contractor-dealer to conduct an exclusive or specialty shop on a "grocery store" margin of profit. The public has been educated in buying from an exclusive shop to pay specialty shop prices and the exclusive shop owner in other lines of business has learned that he can make the greater margin of profit needed to conduct such a business.

A recent analysis of an appliance price list published by a firm of national reputation as manufacturers of electrical appliances revealed some rather startling facts. Staple merchandise or appliances of every day sale carried what might be termed a long profit; at the same time slow moving appliances such as tailor's irons which are staple merchandise, but from their very nature must be slow moving, carried a very narrow margin of profit. Some slow moving appliances which the dealer must stock carried as low a margin of profit as 11 per cent gross when purchased in standard package quantity.

The Varying Margins of Profit

It is a recognized and fundamental principle of merchandising the world over that slow-moving merchandise must, if it is desired to make a profit, carry a longer margin of profit than goods which move more rapidly. Yet a nationally known maker of electrical appliances decrees that his slow moving merchandise must be sold at a much lower margin than the rapidly moving merchandise. Probably electric irons are the most staple and rapidly moving of all electrical appliances, yet many manufacturers fix a resale price on irons which would make a profit if he turned his stock but three times a year, while appliances that move slowly are priced at a margin that would necessitate a turnover of at least twelve times a year, which is practically impossible.

It is true that sales volume is desirable, but sales volume attained through increase in doubtful and uncollectible accounts is unsound practice if carried too far. One of the crying evils of the electrical merchandising branch of the industry is "Easy Credit." If wholesale houses would enforce strict credit regulations the competition of "the man who does not know how" would quickly be eliminated.

It is this competition of the man who does not know how—the man who is a worry to credit men—the man who takes sixty days, ninety days or longer to pay his bills because the wholesaler shirks his responsibility in enforcing some credit regulations,—that makes the rest of the contractor-dealers dubious credit risks.

So much for the selling end of the contractor-dealer business. The speculative part of the business, however, is the contracting or construction department—here is where the competition of "the man who does not know how" works such havoc. This competitor does not know how to estimate labor and does not know how to price a job once it is figured. Preparing an estimate properly calls for sufficient engineering skill and experience to devise an economical and efficient layout, to "take off" material accurately, to estimate the labor necessary

to install that material and to price the job when the net estimates are made.

The price figured on a job can be determined with the same precision and accuracy used in measuring runs of pipe or counting outlet boxes. Too many contractors "add" 20 per cent for profit. Others find from an accountant that their overhead is, say 25 per cent, which expresses the relation of cost operation to volume of business, and use this percentage as an addition to net cost and not as a percentage of resale on a job.

Thus the contractor-dealer has two problems to face—proper estimating, and proper pricing. A number of estimating systems have been developed which take much of the guess work from estimating labor for electrical construction provided they are intelligently used. Too few contractor-dealers use any estimating system at all but prefer to visualize a job part by part and rely upon their practical experience to guide them in "estimating" (guessing) the labor necessary. This is often disastrous practice because all journeymen do not produce the same amount of work in a given period while the contractor-dealer who visualizes his job as a means of estimating labor is prone to use as a measure the work a particular journeyman and helper can produce in a day.

"Time and Material" Basis Most Successful

The most successful contractor-dealers in the West, however, do no actual contracting work. Their construction work is all done on a "time and material" basis with a result that their business has grown and prospered. There is no gamble in doing work on this basis but there is a definite responsibility on the part of the contractor-dealer to treat his customer and his customer's money with the same care he would treat his own money if a job on a time and material basis were a straight contract. These successful contractor-dealers which are at present the leaders in their respective communities realize their responsibility to a customer and capitalize their ability to render such service. It takes real sales ability to conduct business along these lines but contractor-dealers who follow this practice find results amply repay their efforts. Investigation of the methods of the most successful contractor-dealer establishments in the coast cities shows that in nine out of ten cases the successful firms do no straight contracting business. By superior salesmanship and superior service they build up a reputation that draws business despite the competition of low prices from the man who does not know how. It is these men who raise the contractor-dealer class from what would otherwise be a hopeless condition.

Theoretically, the straight electrical contractor should be the best credit risk of all four classifications for many reasons. By comparison his overhead expense or operating cost is lower than the contractor-dealer but the risks he takes are greater. The practice of drawing progress payments on construction work each month as the work progresses

should make it possible for a job to finance itself. Progress payments vary from 75 to 85 per cent of time and material expended on a job each month. As no successful contractor takes a contract with a markup of less than 20 per cent it is nearly impossible to get each month from these progress payments the money needed to meet the accounts of the wholesaler and to replenish the fund from which wages of journeymen are paid. With thirty-day progress payments and thirty-day credit at the wholesale house a contractor need have only funds sufficient to finance payroll for a month and still be a good credit risk.

The size of this fund to meet payroll and incidental expenses is what makes the contractor a worry to the credit man. This fund is the capital of the contractor and it is usually a somewhat limited amount. When the contractor has several jobs in progress he is hard put to meet the weekly payroll. Money that would ordinarily pay the material bill is used to meet the payroll. The contractor having used his progress payment in this way is still quite solvent if his jobs are properly estimated and priced and at the completion of these jobs in progress would be able to meet his obligations. After waiting forty-five or sixty days, however, for a payment the credit man must have money. The harder he presses the contractor for money the harder that individual tries to get more jobs to produce the necessary money. Getting jobs under these circumstances generally means cutting prices and cut prices lead to bank-

ruptcy. Fortunately contractors realize this and the experienced man is usually able to make satisfactory arrangements, either with his wholesaler or with his bank, to meet the temporary needs.

Real Need for Revision of Prices

Summarizing the unfortunate condition of credit in the contractor-dealer business, we find the non-electrical distributor of electrical goods a good credit risk; the electrical dealer a good credit risk; the electrical contractor a fair risk; and the contractor-dealer with rare exceptions the man who causes worry among credit men. The reasons for this are many but chief among the multitude is a real need for revision of resale prices to conform to standard merchandising practice. The strict enforcement of rigid credit regulations would also help the contractor-dealer in the long run but would undoubtedly work hardship on many for a time. Undercapitalization, which is now a fault of this branch of the industry, can be remedied when conditions are such that capital can earn a reasonable return in the business. The gradual education of the contractor-dealer along the lines of estimating and accounting is progressing but has not yet reached the point of accomplishing the desired results. As time goes on, however, there will emerge from the present chaotic condition more and more contractor-dealers of a financial and business standing which will compare favorably with the strong retailers in other lines of business.

The Finance Company and the Contractor-Dealer

By C. Wilbur Fritz

Vice-President, Republic Company of California, San Francisco

UNTIL recent years, there have been four important factors in the distribution of electrical goods and no one could operate successfully without the other. They were the manufacturer, jobber, contractor-dealer and consumer. But modern business has added another to the list, the finance company, for the finance company today is as essential to all the other four as they are to the finance company. And the more progressive a manufacturer, jobber or contractor-dealer, the more essential becomes the finance company, for the finance company exemplifies present day progress. And progress and success is the aim of all.

The growth of the installment or deferred payment method of selling has caused this entrance of the finance company into the electrical fraternity. This method of selling merchandise has existed for a number of years but it is only within the last few years that the electrical industry has seen its value to themselves and adopted almost universally this method to develop volume. However, when the contractor-dealer has arrived at a point where the

amount owing him in installment accounts has reached an amount where he is becoming hampered and restricted for want of cash, it is time to do one of three things—refuse new business, obtain additional capital in his business or arrange with a finance company for the discount of his installment contracts. It is important and fundamental, though, that such a discounting arrangement be self-liquidating and have no other due date than the collateral itself.

Most finance companies are operated along similar lines, viz.: the purchase of installment contracts, payable in monthly or weekly payments, at specified discounts for various maturities. The companies vary in their policies in that some permit the dealer to make collections, others make their own collections; the cost of service varies, and there is also a great contrast in the amount of red tape connected with the services of different companies.

The Republic Finance & Investment Company of Indiana and The Republic Company of California, the companies with which I am associated, always main-

tain one set policy—give the dealer the most we can for the least possible cost and eliminate as much red tape as possible. We accomplish this by handling the installment contracts in schedules of ten to twenty or thirty or more rather than individually—this not only eliminates detail for the dealer but overhead for us, and the less the overhead, the less our costs, resulting in cheaper service to the dealer. In addition to actual monetary transactions, Republic service includes personal assistance in bookkeeping methods, advanced collection ideas and follow-up methods and even ideas pertaining to proper merchandising which we believe will be helpful to the dealer.

For a number of years Republic financing has been limited to installment sales of the larger appliances in the electrical industry, such as washing machines, vacuum cleaners, ranges, etc. Our business, however, has led us to observe the methods of selling in other lines and our attention was attracted to the initiative used by a number of furniture houses to obtain sales of furniture in homes where the furniture then in use was 15 or 20 years old, and a large volume of business was obtained by selling the idea to the housewife to keep her home modern and up to date, a thing she could not possibly accomplish without new living room and dining room furniture. That sort of selling brought them a good volume of business—but Mr. Contractor-Dealer, how many housewives have you attempted to sell new and modern up-to-date electrical fixtures? Why shouldn't the housewife be just as interested in her electric fixtures as she is in her dining room chairs? Certainly the fixtures are in plainer view. And when you get that fixture job, a suggestion for a convenience outlet in the dining room for the percolator or waffle iron, and several in the living room for lamps, and one or more in the bedroom for a curling iron wouldn't be amiss. And when you find out all that the family would like to have and submit an estimate, if they can't afford to pay all cash, their credit on a lease contract where they own their home should certainly be good.

Another way that your volume can be increased, in our opinion, is on new homes. Isn't it true that nine out of ten owners that come in to select fixtures have to stay within the contractor's allowance, for arbitrary figures say \$100, and they look at first one fixture and then another and finally make their choice like many people buy a meal, from the price column. Why not give them what they want, probably a \$200 job, and take your \$100 as a first payment and permit them to pay the balance at \$15 or \$20 per month?

Then, again, how about all the unwired homes in your town? The business is there to be had and it certainly isn't a hard job to sell owners on the idea of electricity in their home—you only have to sell them the idea that they can afford it and if you were to offer them the privilege of installment payments, you will get the business.

As stated above, these are some suggestions of business to be had in the electrical industry observed

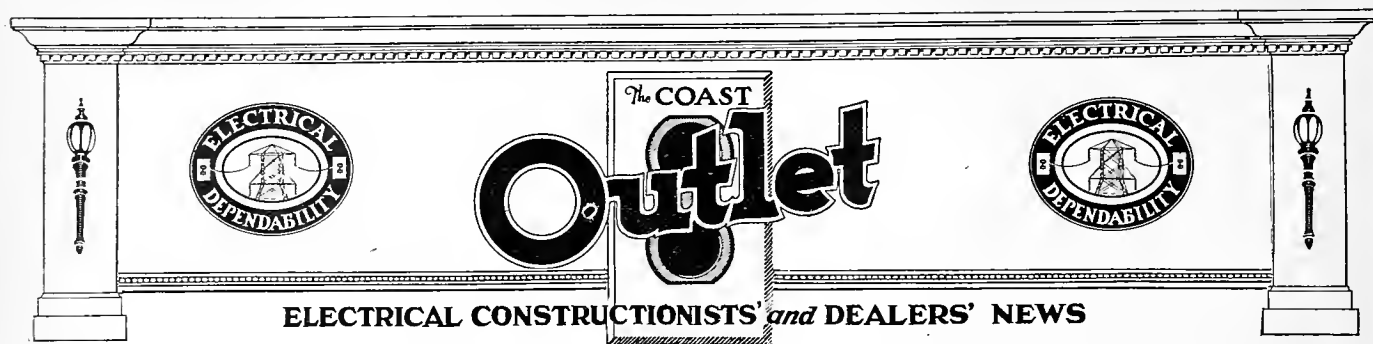
by Republic Finance officials, and believing these methods sound, we have worked out plans for financing installment contracts on this basis. This is but a step forward but we believe that it will be a great sales stimulus for the contractor-dealer.

This plan has already been put into operation and within a few weeks one contractor-dealer in San Francisco has obtained dozens of jobs on unwired homes and his prospects have been made customers through his offer of installment payments.

This class of business will require just as much caution as to the credit risks as any other and we always advise obtaining credit information regarding the house owners and whether or not they are in the habit of paying their bills promptly. If there is a retail credit association in your town, I would certainly advise getting a report on each customer. The contractor-dealer cannot afford to take chances of having uncollectible accounts, for in his ability to collect promptly lies his ability to succeed. One bad account eliminates the profit from 6 or 7 good ones, so why take the chance of working for no profit? And note that I have said collect **promptly**, for promptness of collections determines the turnover and one can better afford to do a job at 10 per cent net profit and turn his capital over on this basis once each month, rather than make 25 per cent and only get a turnover every 3 or 4 months.

In the sale of any kind of merchandise, the salesman will invariably follow the lines of least resistance and if selling a vacuum cleaner, will usually, if his prospect appears to hesitate, offer the minimum terms \$5 down and \$5 per month, whereas, had he used proper salesmanship and permitted the prospect to suggest his own payments, he would invariably get a larger first payment and larger monthly payments. The longer the terms of any sale the slower the turnover and of necessity the contractor-dealer must add an additional profit to take care of the slow turnover. It is therefore essential to shorten the terms of any sale to the point that you feel confident your customer can meet, but never make the mistake of making the payments so large that will cause him to be delinquent—you might better make the payments smaller in the first place, for when an account once becomes delinquent, it requires three or four times the attention it previously did.

Modern business accepts the installment method of selling as the greatest potential builder of sales but we must all watch closely that we do not overreach and attempt to stretch our credit facilities to the breaking point. However, the finance companies are carefully watching this situation and attempting to keep the credit structure sound and with the support of the manufacturer and jobber, can assist the contractor-dealer to the end, that he will be a success away and beyond his present status, for the opportunities that await the contractor-dealer are wonderful and it lies with him and with him alone to grasp those opportunities and make that success which he will rightfully deserve.



Electrical Construction

By E. Earl Browne

GROUND connections in recent years have come to play an increasingly important part in electrical systems of almost every kind. One of their chief functions is that of protecting persons and property against electrical dangers by keeping some point in the circuit or some conducting body, at, or as near as possible to, the potential of the ground. The method of protection was first suggested by Prof. Elihu Thomson in 1885, who patented it and dedicated the patent to the public. The

Every connection between electrical circuits and ground or nearby conducting bodies made, **not by design**, but by accident, as by the breaking of wires or failure of insulation, is referred to as an "accidental ground."

In the every day work of the electrical contractor the process of grounding in buildings is inexpensively made by attaching the ground wires to water pipes as it is recognized that no danger of electrolysis to water pipes exists by stray alternating cur-

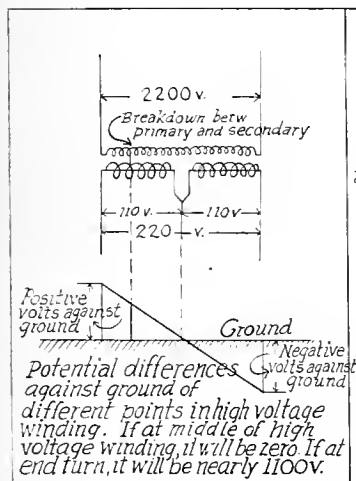


Fig. 1.

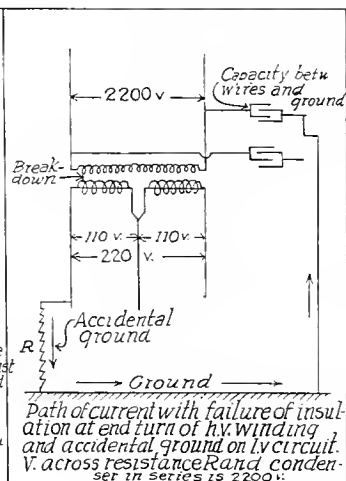


Fig. 2.

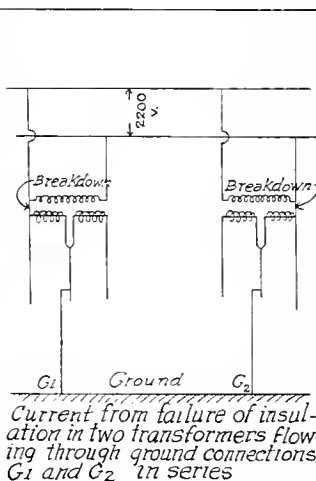


Fig. 3.

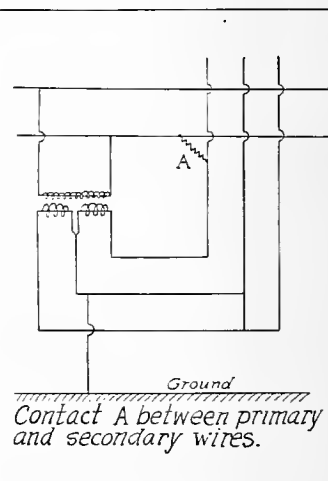


Fig. 4.

actual danger arises from the entrance of current and voltage from the high voltage circuit upon the low voltage circuit, either through a leak in insulation between transformer windings, or through a contact or connection accidentally formed between wires. Where depended upon for the above protection, the grounds should be carefully made, because if they are poorly made or inadequate for the purpose for which they are intended, loss of life or serious personal injury may result. See Figs. 1, 2, 3 and 4.

The terms "ground," "grounded system," "permanent ground," "ground connection" and "earth connection," as herein used, refer to electrical connections intentionally made between electrical circuits, or conducting bodies in close proximity to electrical circuits, and metallic bodies embedded in the earth, such as water pipes, plates or driven pipes.

rents as may result from grounding low-potential,* alternating current circuits. Direct current neutrals are not permitted to be grounded within buildings. (See 1920 National Electrical Code Rule, 15A-b&c.)

In connecting ground wires to single phase, low-voltage circuits, the usual practice is to connect the middle wire of three-wire system as in Fig. 5, while with a two-wire system it is usually necessary to attach to one side of the circuit as in Fig. 6. On polyphase circuits the ground wire should be attached to the point in the circuit or to the circuit wire which will give the lowest voltages between wires and ground. Figs. 7 and 8 are diagrams of some of the polyphase transformer connections in common use. The voltage between phases in each case is assumed

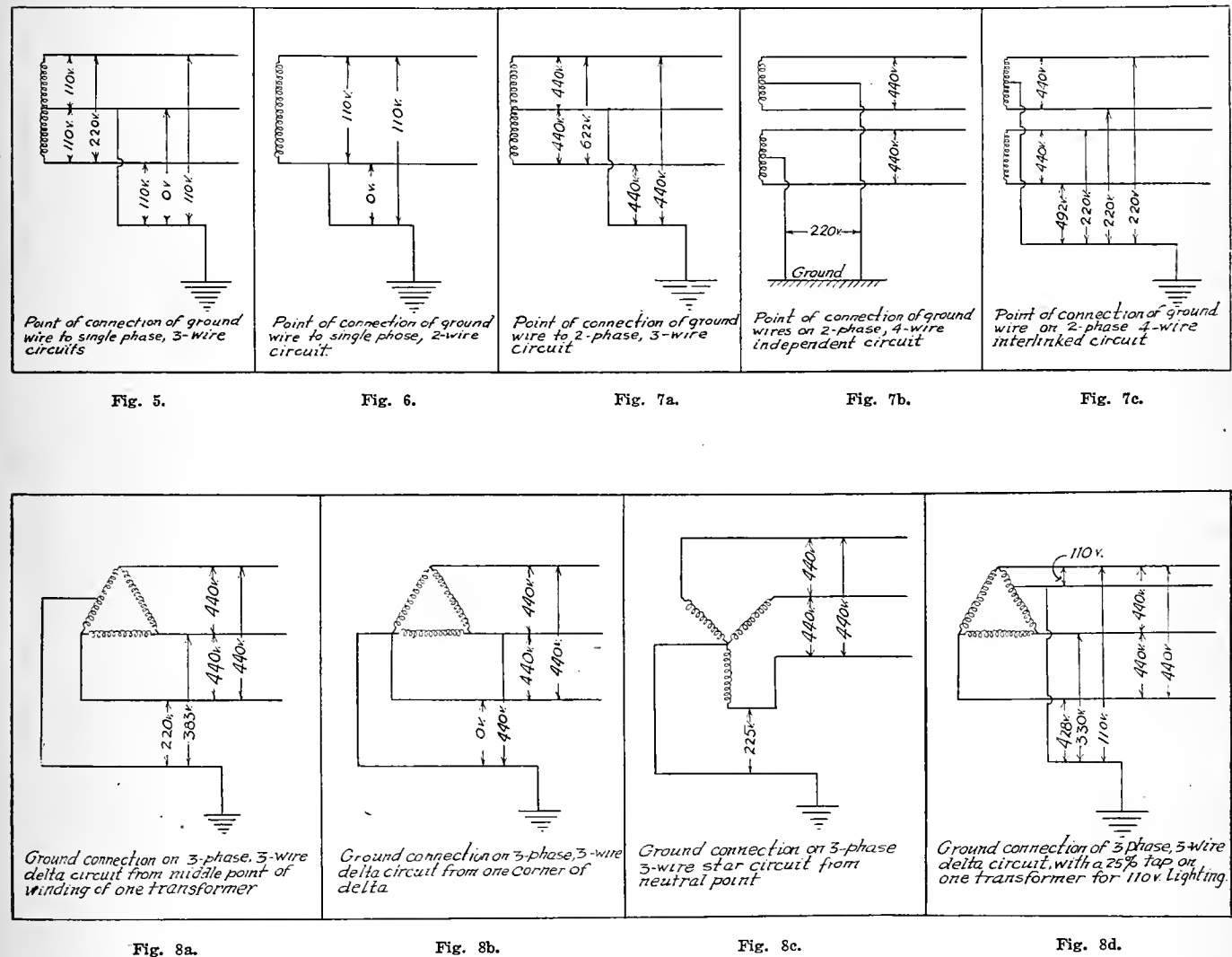
*Low-Potential means any circuit attached to any transforming device or machine which develops a difference of potential between any two wires or between any wire and the ground of not over 600 volts.

to be 440. Fig. 7-a represents a two-phase, three-wire secondary circuit grounded at the middle wire. Here the voltage between either outside wire and ground is 440. If one of the outside wires were connected to ground the other outside wire would be 622 volts above ground ($440 \text{ volts} \times 1.414 = 622 \text{ volts}$), thus causing an increase in the life hazard over that obtained with a ground connection on the middle wire. Fig. 7-b shows a two-phase, four-wire circuit in which the phases are independent of each other. In this case the middle points of each winding can be grounded, putting each of the four wires at 220 volts above ground.

(c) Four-wire, interlinked externally, at the middle point of one of the windings.

Fig. 8-a shows the secondary circuit of a three-phase, three-wire delta-connected bank of transformers, with the middle point of the winding of one of the transformers connected to ground. The maximum voltage to earth is 383, or 87 per cent of the line voltage, and the minimum is 220 volts.

In Fig. 8-b is the same circuit with one corner of the delta grounded instead of the middle, which, of course, takes one wire at earth potential under normal conditions of operation, while the others are at full secondary voltage above ground.



In Fig. 7-c, it is assumed that the phases are interlinked at the motor taking energy from the circuit, so only one wire or the middle point of one winding can be connected to ground. The latter gives 492 volts between one outside wire and ground. The former gives 440 volts between two of the outside wires and ground. In two-phase circuits, therefore, the best points to ground are:

- (a) Three-wire, at the middle wire,
- (b) Four-wire, independent, at the middle of each winding,

Fig. 8-c represents a star-connected, three-phase, three-wire secondary circuit with the neutral point grounded, the voltage to ground of any wire being 58 per cent ($1 \div 1.732 = .58$) of the secondary voltage, in this case 255 volts.

Fig. 8-d is a common connection where a 25 per cent tap is brought out from the windings of one transformer to give 110 volts for lighting. The proper point to ground in this case is this tap, because one wire of the lighting circuit is at ground potential while the other is at 115 above ground.

A Correct Knowledge of Overhead Cost Is Needed

Failure to Know the Percentage of Overhead Expenses to Labor and Material Costs Results in Loss to Contractor

By F. V. MITCHELL*

To devise and install an efficient accounting and operating system necessitates a thorough analysis and investigation of the entire business from the very bottom up. You have done, individually, a great deal towards bringing about the correct estimate of direct material and labor costs on jobs for contract bid purposes, but I want to sound the keynote to my mission by telling you frankly that the majority of electrical contractors that have engaged me to install systems, possessed sadly mistaken ideas of their correct percentage of overhead expense before I showed them in black and white what it actually was. It appears to me that there are a great many more groping in the dark, as far as knowledge of correct percentage of overhead is concerned.

net loss to him. But there is the whole trouble in a nutshell, the contractor not knowing his correct percentage of overhead, naturally makes the wish father to the thought and uses a considerably lower figure than he should in arriving at a contract price.

Often through confusion, the percentage of overhead to sales is used instead of the percentage to costs. Such an error as this is a very expensive one as the former is naturally very much lower than the latter.

The old isolation idea in business is done, for today the success of an industry of this size depends chiefly upon a correct knowledge of operating costs by the individual members. There is no way that this can be ascertained better than through the medium of a uniform,

been called on the scene too late to do other than save as much as possible out of the wreck for everyone interested. The lack of knowledge of correct percentage of overhead to material and labor costs was one of the principal roots of all these troubles. When everyone of you has been shown the correct figures relating to your own business such as I have done for a number to date, there is going to be a general disappearance of the old bugbear, reckless competition, but not until then. Why not get busy on this important and vital matter instead of waiting until more of your good members have had to close their doors?

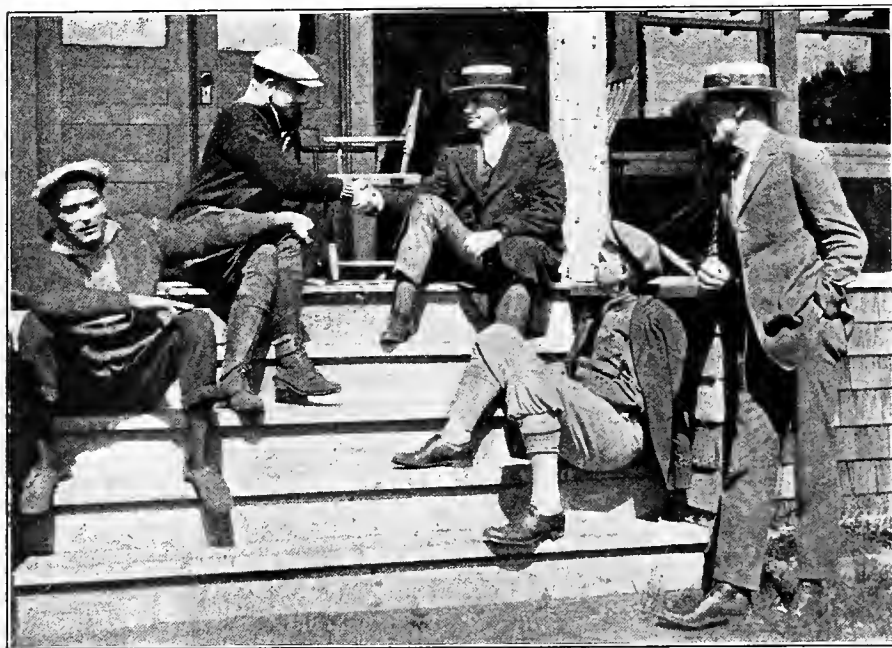
It should be the aim to get the books and records of the individual members in shape so that the correct result of operations can be easily obtained and proper corrective methods be taken both individually and collectively to place the business as a whole on a legitimate basis, instead of the hand-to-mouth existence many in your industry are operating under today. If you all know your correct percentage of overhead, your industry is lifted into the higher plane of competition—that of skillful workmanship and management.

In all communities there is that man who takes the job at the prohibitively low figure and feels sure he is going to make a little money out of it because he is laboring under the mistaken impression that his percentage of overhead to material and labor costs is considerably lower than it actually is. I hear of statements made by some large electrical contractors to the effect that they are operating on an overhead of variously from 5 to 15 per cent of their material and labor costs. There may possibly be some chosen few with an overhead as low as this. I would almost be willing to risk an opinion, based upon my experience with a fairly representative lot of northern and central California firms, that the average overhead to material and labor costs, at the present time at least, is between 25 and 30 per cent. Of course, I always include in the overhead of a business a fair salary for the proprietor of the business as he is performing duties for which someone else would have to be employed.

While I am laying a great deal of stress upon the lack of knowledge of correct overhead as one of the principal seats of your troubles, let us not overlook the dollars and cents that are being thrown away every day through gross neglect in the handling of accounts receivable, the financial backbone of your business. I have been astounded to see the loose methods followed by some electrical contractors and dealers in keeping track of what customers owe them and, needless to say, there is always the resultant loss out of your pockets that follows in the wake of careless bookkeeping, especially in attempting to maintain a record of accounts receivable without the proper control or profit.

California Contractor-Dealers Adopt Code of Ethics

Among the things accomplished at the Donner Lake Convention of the California State Association of Contractors and Dealers was the adoption of a code of ethics that contains the ob-



All of the branches of the electrical industry gathered in groups similar to this one to discuss their problems at the Donner Lake Convention of the Contractor-Dealers. From left to right the men are: "Dent" Slaughter, Allied Industries, Inc., San Francisco; Walter Spencer, Spencer Electric Company, Oakland; F. V. Mitchell, public accountant, San Francisco; R. S. Prussia, district illuminating engineer, Westinghouse Lamp Co., San Francisco; R. L. Elzla, Electric Meter Shop, Fresno.

Before attempting to prepare a bid on construction work, you should have before you your actual percentage of overhead to material and labor costs so that you are in a position to know exactly what per cent to add to your estimate of material and labor costs to cover your overhead and give you a fair margin of net profit on your work. Guesswork as to percentage of overhead is absolutely the surest and quickest road to disaster that you can take. That is not a haphazard prophecy of mine, for I have seen many instances of this while reviewing the records of the majority of electrical contracting firms that have failed.

Needless to say, no electrical contractor would take a job if he knew beforehand that it was going to result in a

simplified accounting system for the common good.

As I see it, you men of the electrical contracting and dealing industry collectively represent one of the mammoth industries of this great commercial country today. It seems to me nothing short of overlooking a wonderful opportunity that you do not make some concerted effort to place your business upon a fair money-making basis instead of continuing in the throes of cut-throat and reckless competition.

I have seen your business from every angle. I have been called in by contractors and dealers who were showing a small profit at the end of the year, but a profit which was not satisfactory to them in view of the amount of money invested. I have been sent in by creditors in time to help the proprietor save a business and place it back on its feet for himself, and at other times I have

*From a paper presented at the Donner Lake Convention of the California State Association of Contractors and Dealers.

jects of the Association. The code as adopted is as follows:

Believing electricity to be the greatest servant of mankind,—the objects for which this Association is formed, are:

- 1—To assist the public in becoming more generally acquainted with the many and varied uses and applications of electricity to the duties of every day life.
- 2—To make the offices and stores of members the "service stations" for such help and general information of an electrical character as the public may seek; being appreciative of the fact, that its welfare safeguarded and desires efficiently and courteously served, is the success of any business.
- 3—To be ever watchful for improved methods in business, that the highest standard of service may be given customers.
- 4—To impart to the customer a "homey" atmosphere while in the office or store, having him feel his visit is a welcome one and that we are glad to serve him.
- 5—To realize that satisfied customers are the best asset of any business and the surest road to success. That promises made good is reputation maintained; promises broken are beyond repair. That while we are business men and anxious to succeed, we desire no success not founded on the principle of satisfied customers and the Golden Rule.
- 6—To distribute among members the fullest information obtainable in regard to all matters affecting the electrical construction and retail electrical merchandising business.
- 7—To bring about more friendly relations between electrical contractors and retail dealers and others engaged in the electrical industry.
- 8—To assist in standardizing and marketing high grade electrical material and apparatus of American manufacture.
- 9—To encourage its retail members in the maintaining and conducting of attractive electrical stores.
- 10—To elevate the standards of electrical installations and to cooperate with boards of underwriters, state and municipal inspection departments, engineers, architects, public utility companies and municipal electric light and power companies, to generally better conditions by the reduction of fire and accident hazards and the rendition of improved service.

Association Formed by Alameda County Electrical Men

After an intermission of almost two years, during which no permanent contractor-dealer association existed, the contractor-dealers of Alameda County, Calif., have perfected the organization of the Electrical Contractors and Dealers' Association of Alameda County. From the members of the industry in the cities of Oakland, Alameda, Berkeley, Fruitvale and Piedmont, forty memberships have been secured since the association was started about June 1 of this year.

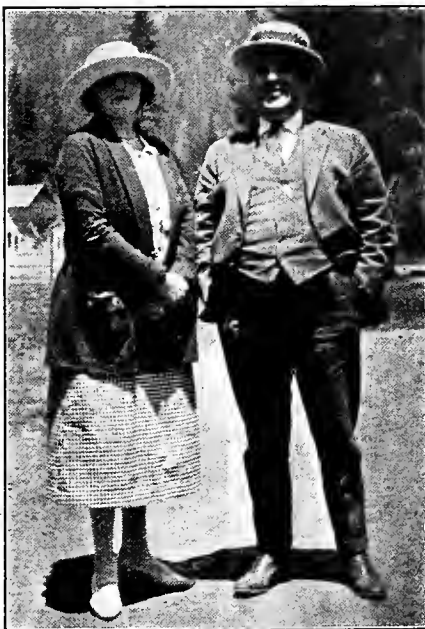
The purpose of the organization is to foster the exchange of ideas that will lead to the advancement of the industry in general and in particular as

regards the promotion of discussion that will lead to the forming of a correct basis for the estimating of work so that the contractor will secure a fair profit. The organization rules prohibit the fixing of prices by group arrangement, but urge the adoption of business methods that will enable the contractor to figure the cost of work with more certainty so that he will secure a profit by doing the work at his estimate figure.

Meetings of the association are held every Tuesday evening at the Builders' Exchange Building and men prominent in the industry are invited to address the body. F. V. Mitchell, public accountant, addressed one of the first meetings of the organization, using as his topic the need for an absolute knowledge of the overhead cost of the shop. His talk dealt principally with the contractor's business from the point of view of the accountant. A. E. Rowe, Garnett Young & Company, San Francisco, spoke before the July 17 meeting and told of the advantages that could be obtained through cooperation.

Attendance at the meetings of the association has been extremely good, according to reports of the secretary. During the first six weeks that the organization was conducting meetings, the attendance averaged approximately 90 per cent of the full membership. Vital points have been touched upon by the speakers and as a result of the talks that have been presented a considerable amount of discussion has been brought up by the members.

One of the activities that the new association intends to enter is that of cooperating with the Department of Electricity in the city of Oakland. It is the intention of the association to confer with the department in order that the inspection rules may be standardized and thus eliminate considerable misunderstanding that has been experienced in the past.



One of the best known men affiliated with the Electrical Contractors and Dealers' Association of San Francisco is Arthur Elkin, secretary of the organization. Mr. Elkin has been active in the work of the association and during the state convention at Donner Lake he made many new friends among the contractors and dealers from other California cities. Mrs. Elkin accompanied Mr. Elkin to Donner Lake.

The officers of the association are: T. L. Rosenberg, Quality Electric Company, president; A. Weber, Paramount Electric Company, vice-president; W. D. Vance, Pacific Electric Motor Company, secretary; and W. E. Scott, Scott-Buttner Electric Company, treasurer. Several committees have been named by President Rosenberg, the chairmen of the principal ones being: Walter Spencer, Spencer Electric Company, executive committee; C. D. Bronson, California Electrical Construction Company, legislative committee; C. Gates, Roberts Manufacturing Company, membership committee. The list of members includes the following firms:

Advance Electric Company
 Alex Anderson
 Andrews Electric Company
 F. A. Anderson
 James Anderson
 Blundon & Margie
 Boynton & Reed
 Bushman Electric Company
 Century Electric Company
 R. H. Conrad Electric Company
 California Electrical Construction Company
 E. M. Coffin
 Cooperative Electric Company
 Cooper Electric Company
 Commercial Electric Company
 Electric Equipment & Repair Company
 Electric Motor & Machine Works
 Electric Shop
 Fruitvale Electric Company
 Goss Electric Shop
 Goff Electric Company
 R. H. Green
 Guarantee Electric Company
 Hartman Electric Company
 Hoxie & Meech
 N. C. Hopkins
 La Pugh Electric Company
 Maxwell Hardware Company
 Melrose Electric Shop
 Monarch Electric Motor Company
 Miller Electric Company
 NePage McKenny Company
 Newberry Electric Company
 G. E. Ortman
 Pacific Electric Motor Company
 Paramount Electric Company
 Quality Electric Motor Company
 Roberts Manufacturing Company
 Scott-Buttner Electric Company
 Spencer Electric Company
 Harry Stroll
 Snott Electric Company
 Strom Electric Company
 Thomas J. Thompson
 P. H. Wetzel
 Wilson Electric Company.

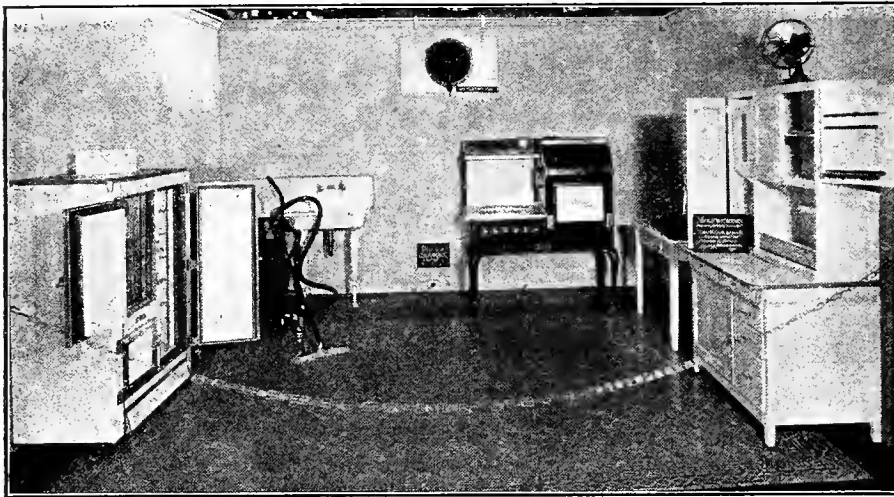
Electrasts' President Urges Joining Associations

For the man in the electrical industry to get the most out of his business, he should have a membership in the local organization and also the national association of his branch of the industry, is the opinion of James R. Strong, president of the Association of Electrasts International. Mr. Strong was the speaker of the day at the July 23 meeting of the San Francisco Electrical Development League.

In his talk Mr. Strong dealt principally with the advantages of associations and told of the activities of several of the electrical associations. He stated that vital business facts were being less jealously guarded at the present time and drew the conclusion that associations were partially responsible for this.

To make the retail appliance business a more remunerative one, the speaker advocated the calling in of national and local associations to solve the problem. He stated that in the first three months of the present year, eleven central station companies in the Middle West had found that in selling two million dollars' worth of merchandise they had had a net loss of 12 per cent.

JOBBER, DEALER AND SALES AGENT



The model electric kitchen arranged by the Denver Electrical Cooperative League. Note the small sign calling attention of the visitors to the convenience outlet on the back wall of the booth.

Denver League Aids in Presenting Homes Show

Sixty-five Thousand People Visit Better Homes Exposition that Featured the "Do It Electrically" Idea

One of the planks in the platform of the Electrical Cooperative League of Denver, Colo., is "the encouragement and co-ordination of electrical exhibits at various expositions." Development of this idea in connection with the Better Homes Show recently staged in that city under the auspices of a local newspaper, provided an opportunity, according to reports, second only to an electric home, in conveying the message of "Do It Electrically" to the public of Denver.

The exhibition proper was purely of an educational nature. It consisted of 26 model rooms, a garden, and a stage

from which the lectures were delivered afternoon and evening. Surrounding this setting in the municipal auditorium were nearly a hundred booths of Denver business firms, through the efforts of which the cost of the show was underwritten. In these booths, in the boxes, and in the corridors, trade names and prices could be mentioned. Individual advertising and personal demonstration were also permitted.

According to the established practice of the American Homes Bureau with headquarters in Chicago, the organization staging the various shows through-

out the country and providing the lecturers, the model rooms were not commercialized other than through small artistic signs indicating that a special service had been rendered by the individuals or firms mentioned.

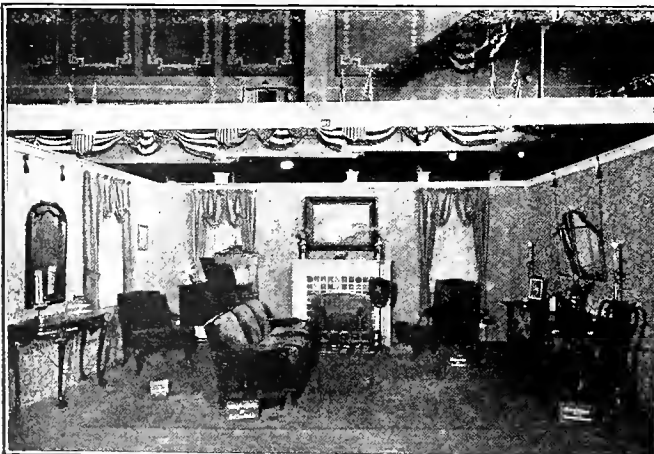
When the Denver newspaper sponsoring the show first considered the undertaking, the Electrical Cooperative League was consulted relative to the electrical features to be developed. As a result, a minimum standard of wiring was established, considering the nature of the wall construction.

At least one convenience outlet was established in each room, and notably in the case of some of the model living rooms two and three outlets, some of them duplex, were installed. It was not possible to standardize this feature, according to reports, because of there being no hollow separating partitions between many of the rooms.

The same condition prevented the installation of the desired number of bracket lights. With no ceilings to the rooms, it was impossible to hang ceiling fixtures but the illumination did not suffer, it is said, because of the great number of portable lamps used in addition to the brackets. A channel reflector also was located overhead at the front of each room and from this source general illumination was provided.

In the case of convenience outlets, where visible to the eye, a sign was attached indicating the name and nature of the device. Special attention was called to the duplex receptacles. At various places conspicuous to the visitors but not in proximity to the outlets similar signs were employed, advising that every room in every home should have at least one convenience outlet.

Several of the model rooms were turned over to the League for arrange-



At the left may be seen the model living room displayed cooperatively by Denver merchants at the Better Homes Exposition. The Denver Gas & Electric Light Company's modern laundry room exhibit is shown in the illustration at the right.

ment, notably an electric kitchen, laundry, and radio room. The equipment required in these rooms was secured from the electrical firms maintaining exhibition booths. A large number of appliances were also placed in other rooms, following the scheme employed at the exhibition of the electrical home in Denver.

A special advertising section was issued the day before the show opened and over 300 in. of editorial matter on electrical subjects was used. The syndicate matter was passed upon by the League and a number of articles were also written by the League staff. On the last night of the show, a talk was made by S. W. Bishop, executive manager of the Denver organization, on the application of electrical features, found at the show, in the homes of all visitors.

Attendance for the week totaled over sixty-five thousand and the only cost to the League for its participation was the time required of staff members, and the expense of a few signs.

Helping the Dealer to Properly Serve His Customers

To the electrical dealer, the help that has been furnished by the manufacturer, has always been of considerable value. Sales helps in the form of consumer pamphlets and other literature have been used to good advantage by dealers as have also suggestions concerning the management and operation of the individual store.

These helps have been in the form that concerns the making of the sale and have not always contained information that would permit the dealer to entirely satisfy his customers after the sale has been made. Many electrical devices, particularly those that are in use by industrial and commercial firms, need more or less servicing. To do this efficiently the dealer must be in a position to know exactly what parts of any device will probably need the first attention. This information can be given to the customer and permit him to service his own equipment, or the dealer may be called upon to do the servicing for the customer.

As an aid to its dealers, the Reynolds Electric Company, Chicago, Ill., manufacturer of small motors and motor driven appliances, has recently published in its dealer publication the following suggestions concerning the servicing of electric flashers:

KEEPING THE FLASHER IN PERFECT WORKING ORDER

Perhaps the most neglected part of an electric sign is the flasher—yet it is a very easy matter to keep the flasher up to full efficiency. Nothing presents a more untidy appearance, than a ragged flashing effect. Take for instance a running border which has a perfect traveling or running effect when first installed, and after a while flashes back and forth or with only half the lamps burning. This shows that the brushes on the flasher have burned off to the extent where they no longer touch the contacts; an easy matter to correct. A sign which flashes a word letter after letter, then goes out and comes on as one and goes out and repeats, will, if neglected, show ragged flashing, causing letters to come on and go out in haphazard fashion. This is also an indication that the brushes have not been reset. It is utterly impossible to control even burning or wearing of the brushes and contacts on account of current conditions; therefore periodic inspection of the flasher should be made and the brushes should be reset or moved up to make up for the burning. On speed flashers, a brush makes and breaks in some cases 360 times per minute, 21,600 times per hour, 172,800 times per 8-hr. night. In a

word, flasher work is the hardest known duty in contacting work, and it is only natural that the brushes and contacts burn and consequently grow shorter. The contacts should be kept smooth by use of sandpaper or filing. The brushes should be moved up only enough to make up for burning. Maintenance men sometimes think they are saving themselves work by pushing the brushes in so far that they almost touch the flasher drum. This causes undue strain on the brushes and they will break within a short time and moreover the effect is as a rule ruined. The flasher bearings should be oiled with light engine oil and the motor grease cups should be filled with soft cup grease. The connections to the flasher should be examined now and then, as they sometimes work loose which causes overheating and excessive burning. Grounds in a sign are frequent especially after a rain, and causes an unusual amount of current to flow through the brushes with consequent burning. This condition corrects itself with weather conditions, but in the interim the flasher requires more frequent attention. If the flashing effect is too fast or too slow,

the speed of the flasher can easily be changed by putting on a different size of drive pulley. A few spare parts, such as extra brushes and contacts, should be carried on hand by the user or by the maintenance company to save time and expense. The accessibility of the flasher is imperative. The flasher should be installed in a place where it is convenient to work on. Otherwise it is bound to be neglected. The life of brushes depends entirely upon the load carried and the number of makes and breaks per minute. The brush on a high speed flasher if properly maintained will last from one to two years provided it is carrying a load equivalent to the rated capacity, while the brush which makes and breaks only several times per minute will in turn last three to four years and longer. The life of the contact also depends upon the service and the amount of attention the flasher receives. The brushes and contacts are virtually the only wearing parts on a flasher, and if attended to regularly will last a long time. The balance of the mechanism is built up of oversized parts and requires but little attention other than occasional oiling and cleaning.

Getting a Classified List of Appliance Prospects
Seven Thousand Five Hundred Persons Give Names and Choice of Appliances to Alhambra, Calif., Firm

If you were the manager of a contractor-dealer establishment in a town of fourteen thousand people, what would you give for the information that would tell you in what major appliance seven thousand five hundred of them were most interested? Undoubtedly, you would be willing to appropriate a considerable sum to obtain this information and when in securing this you

sires the most by means of solicitors going from door to door, or to attempt to obtain it by means of letters mailed to the housewives of the town, would be extremely expensive and unfruitful. The S. & H. Service Electric Company, Incorporated, of Alhambra, Calif., recently had reason to desire such a list of prospects and it wished to secure this list without a great deal of expense.

S. & H. Service Electric Company, Inc.

GUESS AND WIN \$60.00 IN TRADE

Name

Phone

Address

Amount Guessed

Winner will receive \$60.00 in trade on any of the following items. Check the one you prefer.

ELECTRIC WASHER	ELECTRIC RANGE
ELECTRIC CLEANER	ELECTRIC IRONER
ELECTRIC SEWING MACHINE	ELECTRIC DISH WASHER

Reproduction of the card upon which guesses were entered. From these cards the firm obtained a classified list of prospects who had indicated their preference for one of the six appliances.

could at the same time determine just which appliance Mrs. Jones and Mrs. Brown each needed the most, you would admit that any reasonable expense would be justified. Such a list as is suggested above is extremely hard to secure, but if it can be obtained, the store manager will find that it is of inestimable value to him. What better prospect list could be arranged for salesmen than one which was based on actual statements, announcing that all of the prospects on the list had expressed that they wanted an electric range more than they wanted any other electric appliance? To secure the information as to what appliance the housewife needs and de-

The manager of the firm realized that the securing of the desired information would entail some expense and he was willing to stand this if the information could be accepted as authentic and correct. The Alhambra Business Men's Association Carnival had been planned for the city of Alhambra, and it was decided to capitalize on this fair. The company planned to have a display at the fair grounds regardless of any special campaign, so it was determined that from this booth an effort would be made to secure a reliable prospect list which would, in addition to giving the names of the visitors, show in what particular appliance they were interested. When

it had been decided to do this, the problem confronting the company was how to obtain the answers to the questions that the company wanted to ask, without offending the prospect.

The old-fashioned guessing-contest was finally found to have characteristics which made it suitable to the company's needs. It was planned to have a covered glass mayonnaise bowl placed at the front of the booth, in which a quantity of rice could be kept. An electrically driven cream whipper was to keep the grains of rice moving about in the bowl and it was the intention to have the visitors at the fair guess how many grains of rice there were in the bowl.

The novelty of the contest as far as the public was concerned was in the fact that the grains of rice were kept in motion by the electric whipper. As regards the electrical industry the novelty of the campaign was in connection with the cards which were used to record the guesses of the visitors. These cards, which were specially printed for the S. & H. Service Electric Company, Inc., contained space for the guesser's name, address and telephone number and the number of grains that the person guessed were in the bowl. In addition to this, a list of six major appliances appeared in tabular form on the card. The guesser was to place a check mark opposite the appliance that he or she preferred. In this way the company hoped to secure the names of the visitors and also to determine which appliance each desired the most.

When the fair was opened the company had its booth attractively decorated and inside displayed, in prominent places, the six appliances the names of which appeared upon the card. A sufficient number of convenience outlets had been provided in the booth to permit the attendant to operate all of the appliances at the same time, should he care to do this. By the use of these

outlets the company was able to demonstrate the appliances and at the same time show the value of these outlets to the housewife. Smaller appliances such as toasters, waffle irons, percolators, irons, fans, etc., were placed on elevated stands arranged along the side and back walls of the booth. Lighting fixtures were hung from the ceiling and a floor lamp was placed near the front of the booth. A quantity of literature was kept within reach of the attendant.

It was not necessary to urge visitors to the booth to participate in the guessing contest as it was free and for that reason provided its own drawing card. In arranging the contest the company offered to give the winner \$60 in trade on any of the six appliances that were listed on the card. By this arrangement the company would be paying \$60 plus the cost of the cards and of tabulating the results, for the list which would show the names and preference of each guesser.

Interest, even exceeding anything that the company officials had expected, was displayed in the contest. Nearly every visitor who stopped in front of the booth took one of the cards and entered a guess as to the number of grains of rice in the mayonnaise bowl. When it came to filling out the lower portion of the card, it was evident that every guesser needed some appliance and in many cases members of a family, one of whom had entered a guess, would argue at some length as to which appliance they needed the most.

When the fair had ended, gate reports showed that about fifty thousand people had attended the exhibits presented there. The count of the guesses received by the S. & H. Service Electric Company, Inc., came to approximately seven thousand five hundred. The winner was given credit amounting to \$60 on the appliance she chose and the company had an excellent prospect list that it could follow-up at any time it chose to do so.

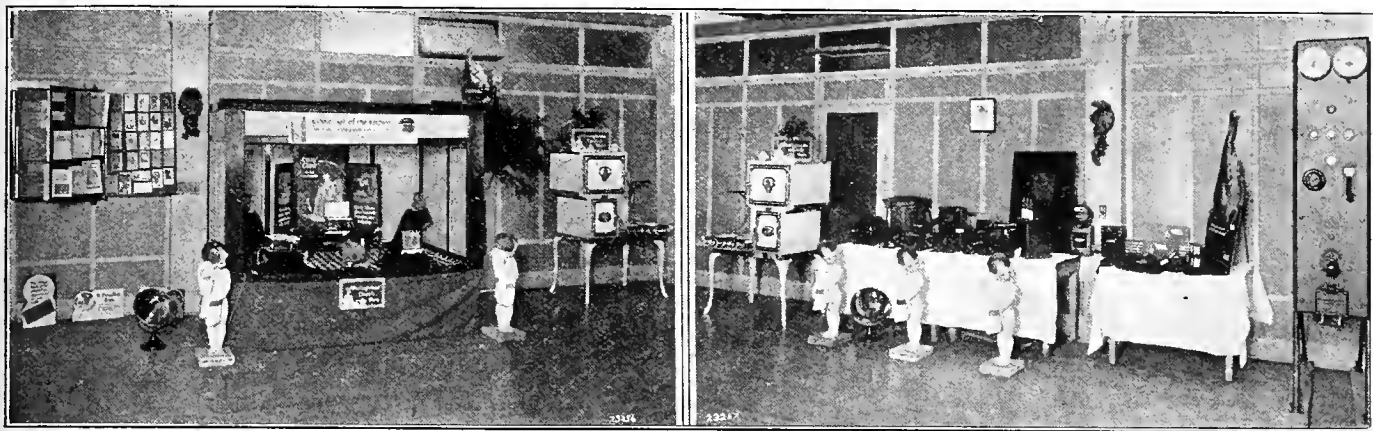
In examining the cards that were returned it was found that a great number of the people who entered the contest were from out of the city, and so it was decided to offer additional prizes to the fifty persons having the next fifty most nearly correct answers. Most of these people were not residents of Alhambra and letters were written to them notifying them of the fact that the company had decided to make the additional awards. The awards in these cases were \$8 in trade on any of the major appliances that the company handled. In the letters that were sent out, attention was called to the complete line of appliances carried by the Alhambra firm and the winners were urged to call and get their appliances at an early date. A time limit was attached to the offer. As a result of sending these fifty letters the company completed the sale of thirty-five major appliances and in addition secured the good-will of everyone who made a guess at the company's booth.

The discount that was offered the winners was one which the dealer could afford to offer and yet it stimulated the interest of the winners in electrical appliances. The manager of the firm felt that the extra \$280 that was given in letters of credit to the thirty-five winners who accepted the offer, was money well spent in securing the good-will of the community.

In Alhambra itself, the concern used the list that had been secured as a prospect list as one on which vacuum cleaner and washing machine salesmen could work. These men first called on those persons who had intimated that they were most interested in vacuum cleaners and then later called on those who noted that they preferred to own an electric washing machine. The lists proved to be of excellent character and sales records show that the idea was one which could be followed by other dealers with exceptional results.



The booth of the S. & H. Service Electric Company, Inc., at the Alhambra Business Men's Association Carnival, showing the bowl of rice that was the center of the guessing contest and the various appliances that were featured at the booth. Notice the abundance of convenience outlets.



The miniature window display at the left and the display of equipment at the right appeared at either side of the speakers' table at the meeting of the Seattle Advertising Club that was turned over to the local office of the Westinghouse Electric & Manufacturing Company.

Cooperating With the Northwest Advertising Clubs

Electrical Message Is Presented to the Clubs of Seattle and Spokane by Representatives of Manufacturers

To the electrical industry, the advertising clubs that are located in the principal cities of the West, offer a very suitable opportunity to present the "Electrify" story. These organizations are willing to turn their meetings over to reputable concerns that will present programs which show what is being done to increase the sale of any product through the use of advertising.

In the early part of this year the Seattle office of the Westinghouse Electric & Manufacturing Company secured permission from the Seattle Advertising Club to take charge of one of the weekly meetings of that body. In preparation for the meeting, the Westinghouse representative in Seattle had the tables arranged to form a large "W" and to add color to the dining room, flowers were placed on each table.

In addition to this a comprehensive display of the smaller products manufactured by the company, was also presented. This display was divided into two parts. At the left of the speakers' table a miniature window display was placed. Near this the consumer litera-

ture of the company was arranged on a display rack. Cards that are ordinarily used in window dressing were placed in the miniature window and at either side of it. White enameled ranges were placed at either side of the speakers' table, in plain view of the club members.

A display of the smaller industrial equipment manufactured by the company was located at the right of the speakers' table. There small motors, transformers, switches, meters and lamps were presented in an attractive manner. A panel-board was also shown.

During the meeting a lecturer from the Westinghouse company demonstrated how waffles should be baked on an electric waffle iron. This attracted considerable interest as did the drawing for the five waffle irons that were given away to the members of the Advertising Club. The Westinghouse company also presented the club members with pocket diaries.

Speakers for the day carried out the electrical idea. J. G. Miles, manager of the central station department of the

Seattle office of the Westinghouse company, spoke on "The Power of the Name Westinghouse," and pointed out the advantages possessed by Seattle in having a sales and manufacturing office in the city. E. G. Patterson, of the service department, discussed "Local Manufacturing" and R. W. Buckles, Seattle manager of the lamp division, told of the activities of his department. "Merchandising Avenues of Distribution" were discussed by E. V. Peterson, merchandising manager of the Seattle office.

Another example of cooperation with the local advertising club was recently enacted at Spokane. At the annual "Animated Ad Club Ball" the Eureka Vacuum Cleaner Company had two different "forms of advertising" present. Two little girls especially proficient in fancy dancing were dressed as "Princess Eureka" and "Prince Thor." These little girls mingled with the other animated advertisements and attracted considerable attention. During an intermission they presented a special dance number. "Princess Eureka" was impersonated by Dorothy Jean Logan, daughter of Eugene Logan, civil engineer of the Washington Water Power Company, and Elizabeth Bryan took the part of "Prince Thor." The children received honorable mention at the ball and according to R. B. Carter, Northwest district manager of the Eureka Vacuum Cleaner Company, the advertising has been very effective as far as the Eureka cleaners were concerned.

At the function, J. B. Tubergan, Pacific Coast representative of the Eureka company, with offices at San Francisco, appeared in costume as "Doctor Eureka." Mr. Tubergan carried the conventional doctor's bag on the outside of which appeared a sign reading, "Doctor Eureka, Germ Specialist, Washington Water Power Company."

During the evening the "Doctor" passed out prescription blanks to the dancers. These blanks directed "Mrs. A. Cleanhouse" to purchase a Eureka vacuum cleaner in order to lessen her housework. The blank stated that the "Doctor's" office was in the Washington Water Power Company building. The prescription entitled the holder to the free loan of a cleaner. The stunt attracted considerable attention and the Washington Water Power Company, retailer of the line in Spokane, reported that an increase in sales had been noted following the ball.

Doctor Eureka

OFFICE AT

Washington Water Power Co.

TELEPHONE: MAIN 5171

HOURS: 8 A. M. TO 6 P. M. WEEK DAYS

PATIENT'S NAME

Mrs. A. Cleanhouse

ADDRESS

Any Place

R One Grand Prize Eureka Vacuum Cleaner
to Protect Your Health
to Remove all Dust and Germs
to Increase Home Sanitation
to Eliminate Drudgery
to Save Your Strength
to Stop that "Tired-out Feeling"
to Make Spring Housecleaning Unnecessary.

Use as Needed

DOCTOR EUREKA

PRESENT THIS SLIP FOR FREE LOAN OF EUREKA VACUUM CLEANER

This "prescription" was presented to the women who attended the "Animated Ad Club Ball" of the Spokane Advertising Club. "Doctor Eureka" estimated that every woman was a prospective patient.

The Electrical Dealer Locates in the Shopping Center

A good location, no matter how small the store itself may be, is a distinct advantage to any electrical establishment. This fact has been proven many times to the appliance and fixture dealer in the larger city. In the case of the dealer who handles washing machines and vacuum cleaners it has been felt that the location is not of such great importance as most of the sales that have been made are the result of house-to-house canvasses.

The Electric Maid Shop of Portland, Ore., has recently proved that a good location is also a decided asset to this class of establishment. This store is located in the center of the retail shopping district of Portland and as a result its window displays are constantly before the eyes of the women buyers of the city. The windows are decorated in good taste all of the time, but no attempt is made to present flashy displays. It has been the experience of the manager of the store, that an excellent list of prospects is obtainable from the pedestrians, who, seeing the display will become interested enough to come into the store to inquire concerning the appliances shown in the window.

The location of the store has no doubt a great deal to do with the value of the show windows, for if women shoppers were not constantly passing the establishment it would not be possible for the company to obtain any sort of prospect list from the people who passed the store. As it is, a class of women well able to purchase electric washers and vacuum cleaners, is passing on the sidewalk in front of the shop nearly all day long and by presenting forceful window displays the management is able to attract these women into the store. Once they have entered the door they are marked as excellent prospects, for they have shown an interest in the devices or they would not come inside. A salesman can readily secure the name of the woman and can arrange to have a demonstrator call at her home, that she may see for herself how the washing machine or cleaner would do her work for her in the easiest way.

George A. Kumler, manager and owner of the Electric Maid Shop, has added to the pulling power of his windows by having demonstrators present in them during the hours that the pedestrian traffic is heaviest. He has found as many other progressive dealers have, that a moving display has a much greater power to attract attention than has one which is stationary. It is the unusual in displays that attracts the attention and with a little thought, the demonstrator can prepare a set of trials that vary from the customary ones that have been shown to the public for some time.

THE SILENT SALESMAN GIVEN DUE CREDIT

By JOE OSIER

I'll admit, without waiting for positive proof to be presented, that—

Anyone, no matter how heavy he is above the ears, can—

Complain, find fault and criticise; and, after making this admission,—



The display windows of the Electric Maid Shop in Portland, Ore. The owner of the store has been able to secure the names of many prospects because his establishment is located on a busy street.

even acknowledging that I carry excess weight above my collar button—

I intend to join the mob of moaners and aim my darts and arrows at the Boys in the electrical contracting-dealing and jobbing game who—

Fail to take advantage of the services of the Silent Salesman and—

When I say Silent Salesman, I mean that Buddy who is on the job 24 hours a day—who works rain or shine—who never complains about the heat or the cold and who is never late—

The hardworking Hombre who never tries to beat the clock—who never complains about overtime and who is never troubled with flatfeet or bunions;—

Who is never grouchy, gloomy nor troubled with indigestion; who—

Was never known to strike for a raise or demand his cut of the earnings.

Some folks call this paragon "Ol' Ace in the Hole" while others refer to him as "Eggs in the Coffee" but I—

Being of an old-fashioned turn of mind, prefer to call him the Silent Salesman or John Window Display and—

Now that I have exposed my hole card, let me ask you,—business man to businessman—

Is this Silent Salesman on your payroll?

Is he out in front of your shop, greeting the eye, gladdening the heart and quickening the pulse of the passing public?

Is he flagging them down; is he arresting their attention; is he drawing

them into the shop—giving you the opportunity to—

Strut your stuff?

If he is, allow me to extend the congratulatory hand. If he is not, you must share in the blast of disapproval—

Which I dedicate to the nearsighted electrical jobber-dealer who cannot see beyond the end of the counter.

The Silent Salesman's name is Legion. There are millions of him and he can be found, searching for employment, in every hamlet, town and city the world over.

He is always looking for work and, when a position is found, he has never been known to quit.

Any shopowner can afford to hire him because his salary is paid in time, stock on hand and a few artistic touches and—

His worth cannot be overestimated.

Men of the Trade who have accepted his services swear by him and—

By the same token, Men of the Trade who have not—

Swear at him—but—

Regardless of the invectives of the latter, he keeps up the good work and the shop or store wherein he labors, prospers and the owner smokes cigars made of tobacco and—

The register is bulging with bullion.

And now I am prepared to take the stand and eternally vow that what I have written is the truth—the whole truth—so help me—

To write another column.

Make a Favorable First Impression on Prospects

San Diego Firm Provides Representatives with Unique Cards that Introduce Salesmen and Advertise Merchandise

Just as the unusual thing presented in the circus attracts attention, so does it in the sales campaign of the electrical dealer. It is the aim of the window decorator to present something which will attract attention and to do this he employs either an unusual arrangement of merchandise or obtains the unusual display by presenting goods that are of an unusual design. The things that are seen by people every day will not have the attention getting value that new devices will have unless a definite effort is made to make some unusual presentation.

In keeping with the present tendency to give every store a personality is the policy of providing salesmen with cards bearing the name of the firm and the

short time with the card there is a good chance that the firm name will be impressed on his mind and that he will remember it. In building personality for an establishment it is important that the name of the firm be presented to the prospective customer in such a way that he will not forget it easily. In the last analysis the store with what is called a personality, is the one with which the customers feel that they are actually acquainted. If a customer knows the salesmen of the company that he transacts business with by name, he feels that the institution has a personality and that it is a living thing. The salesman is the representative of the organization and if he is known personally the customer is very likely to attach the personality of the salesman to the company and as a result will feel that he is receiving the personal attention of the concern that the salesman represents.

If the salesman can be introduced in such a way that he is immediately given a personality, and is not just a salesman, part of the barrier to securing an order is broken down immediately. In some cases the ordinary business card will be sufficient to introduce the salesman, but in others a card which has some distinctive design will create a more favorable first impression on the prospect. The unusual card will in all cases develop an impression which will be more lasting.

The Southern Electrical Company, a contractor-dealer firm of San Diego, Calif., has been a consistent user of distinctive sales campaigns in the southern California city and has as a result built for itself a very good name. This company has presented many unique ideas during these campaigns and has found that the results have been well worth the money spent for advertising and publicity. In an endeavor to give the establishment a personality the company has provided every one of its employees, from president to office boy, with a specially designed business card.

This card which is printed in only one color is the same for each employee, but carries the name and position of the individual who presents it. It is prepared to provide the employees of the company with a means for identifying themselves and the company and to serve as a piece of direct advertising. The face of the card as it is presented is the size of the regular business card and has no unusual appearance. On receiving the card, the man to whom it is presented finds that the face of the card is only one-third of the size and that the card unfolds from the rear, presenting a card 3 1/2 in. by 5 1/2 in. The natural instinct of anyone receiving the card is to read the matter which is presented to him in this way. In the case of the cards used by the Southern Electrical Company, the guarantee given by the company on appliances sold, is printed here. On the reverse side of the card an advertisement is printed which gives the names of the electrical devices handled by the company. A statement concerning the service given by the company is also made part of the advertisement.

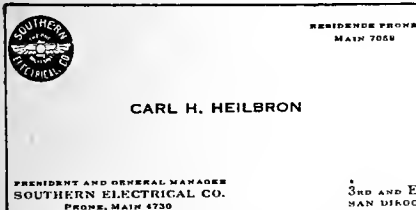
The card, because of its novel design, has attracted much favorable comment in San Diego and has no doubt been a factor in establishing the name of the Southern Electrical Company in the minds of the residents of the city. The costs of printing cards similar to the one used by the concern are not much higher than those for obtaining cards of the ordinary variety, but the benefit that can be derived from them has been found to be considerably greater. Because of the convenient size to which the card folds, it is both easy to carry and to present to customers and because of the novel form it catches the eye of the person immediately. The originality that is expressed in the card demands attention and the average man will not throw the card in the waste

SOUTHERN ELECTRICAL CO. GUARANTEE

For a period of one year following date of purchase, the SOUTHERN ELECTRICAL CO. agrees to supply FREE OF COST to the purchaser, all mechanical and electrical parts of appliances sold by them, which parts by reason of defective workmanship or material in their manufacture, require replacement. All labor and expense incident to such replacement of parts is to be paid for by the purchaser.

Should any appliance through ordinary usage, natural wear and tear, accident, carelessness, neglect or misuse, require replacement of parts or service work of any character, such parts and all labor and expense incident to their replacement and servicing, will be charged for at the SOUTHERN ELECTRICAL CO.'s regularly established rates.

The SOUTHERN ELECTRICAL CO. does not authorize and will not be responsible for any of its representatives deviating from the above guarantee



The card used by representatives of the Southern Electrical Company is shown here unfolded. Black lines have been drawn on the card to indicate the three divisions. In presenting the card the upper two-thirds are folded under the lower portion.

name of the salesman. This has been done by almost every firm which employs men who call upon clients and it is not unusual to have the business caller present a well designed card which may be engraved in several colors. The purpose of these business cards is to provide some means by which the caller may identify himself and his firm. A name engraved on a card will impress itself much more forcefully upon the mind of the person being interviewed, than will one given only in an oral way. It is also much easier to remember something that has been seen than it is to remember a name that has only been heard.

Since the purpose of the card is to identify the person who presents it, many firms have endeavored to prepare cards for their representatives which would be distinctive and which would attract attention. If the attention of the client can be caught for a

WHERE BETTER ELECTRICAL APPLIANCES ARE SOLD

Eden
Clothes Washer

Gyracum
MAYTAG
Clothes Washer

EUREKA
VACUUM CLEANER

Electric SWEEPER-VAC
with Motor Drive - Brush

The HOOVER
Electric Vacuum

SIMPLEX IRONER
Electric

Hotpoint
Electric Sewing Machines

Westinghouse
MAZDA LAMPS

COMPLETE DEPARTMENTS
-WIRING-
LIGHTING FIXTURES
-MOTORS-
-RADIO-
APPLIANCES
-SIGNS-
-REPAIRING-

Our SERVICE

A complete stock of repair parts for all home appliances we sell; a speedy Service Car awaiting your call; an expert Home Appliance Specialist in the capacity of service man, and the lowest prices possible, combine in permitting us to offer a service that makes of every customer a friend.

Call Main 4730 and say "SERVICE."



Reverse side of card which is not displayed until the card is opened by the person that receives it.

basket immediately and forget the name of the firm while so doing. The names of the company and its representative are put in such conspicuous places that neither will be missed even if the person looks at the card for only a short period.

IT'S THE MIDNIGHT MAZDA NOW By C. E. HOWARD

Ye poet in ye olden day
Poeted most at night;
He labored o'er his little lay.
By a most atrocious light.

The hapless bard must strain his sight
By the coal-oil lamp of fishy smell,
Smoky chimney and none too bright—
I wonder now that he did so well.

He wrote of roses and the moon,
The milkmaid and the son of toil,
Love in a cottage, the bride of June—
Oh, how he burned the midnight oil!

But the passing years have brought him gain:
The poet now his verse doth write
(Thanks to the inventor's wondrous brain)
By the midnight Mazda's brilliant light!

INDUSTRIAL NEWS



First Contract Let by Moffat Tunnel Commissioners

A contract for furnishing electric power for boring the Moffat Tunnel has been awarded to the Colorado Power Company of Denver, Colo., by the Moffat Tunnel Commission. The company, at its own expense, is to erect approximately twenty miles of high tension line to each portal of the tunnel. The line will cost approximately sixty thousand dollars. The commission will advance the cost of the line and the power company will return this at the rate of 20 per cent each month for five months. Work on the transmission line has started.

The power line will be connected with the Boulder, Shoshone and Idaho Falls stations of the power company so that uninterrupted service will be supplied to the tunnel crews. The line will start from the Boulder Canyon station and will go over Magnolia Hill to the eastern portal and thence over the range to the western opening. Engineers have estimated that it will take three months to complete the construction of the line.

This is the first contract that has been let in connection with the driving of the tunnel. Contract for the driving of the first tunnel is to be let within the next two weeks, according to reports from the Moffat Tunnel Commission. Specifications will be ready for inspection Aug. 1 and will be opened about Aug. 15.

R. H. Keays, of Allaben, N. Y., has been named as chief engineer in charge of the tunnel work. Mr. Keays has had a wide experience in tunnel construction and is well suited for the position. Major L. D. Blauvelt, former chief engineer for the Tunnel Commission, has been named as a member of the consulting board of engineers.

Transmission Line to Be Built in Central California

Seventy-five miles of 60,000-volt transmission line will be built by the Western States Gas & Electric Company between Stockton and Camino, Calif. Conditions require that the line be completed in five months.

The line will be built on the right-of-way of the existing line and because of this, construction will be confined to one section at a time. The present power loop will be cut out and a section of the present line torn down and a new section installed. As each section is completed it will be tied into the transmission system and another section torn down. During construction secondary distribution lines will be kept in service at all times and temporary switches will be installed in the high tension line to

prevent the necessity of keeping too long a section out at one time.

Flat construction will be used on the line on account of the greater clearance provided by this type. Conductors will be No. 00 stranded copper wire. Pin type insulators are specified with dead ends at turns. A copper telephone wire will be strung on the same poles. Co-ordinate transposition will be employed to guard against inductive interference. Power conductors will be transposed every two miles and the telephone wires every half mile.

Poles for the line will be spaced 350 ft. apart in the lower stretches where 45-ft. poles will be used. In the mountainous stretches of the line 40-ft. poles will be spaced 300 ft. apart. An effort will be made to relocate a portion of the line between Diamond Springs and Ashville. The territory is so rough there that it is extremely difficult to transport material to the present right-of-way.

The line construction will be under the supervision of E. N. D'Oyly, superintendent of electric distribution. A. L. Board, assistant superintendent of electric distribution, will be directly in charge of the work.

General Electric Company Will Erect Plant in Seattle

Negotiations are under way and a deal is expected to be consummated shortly insuring the construction of a large service and distributing shop and plant in Seattle, Wash., by the General Electric Company. The plan, according to announcements made recently, presages the ultimate investment by the General Electric Company of \$1,000,000. The initial expenditure has not been made public.

The site to be purchased covers a block of industrial property on Fourth Avenue South, near the present plant of the Vulcan Manufacturing Company. Details regarding the size of the plant to be built have not been released for publication but, unofficially, it is stated several hundred workmen will be employed.

Speaking of the proposed project, H. E. Plank, manager for the company in Seattle, said: "Our plans are not advanced sufficiently to make a detailed announcement. The General Electric Company expects to build a large service plant or shop where repairs for any kind of electrical machinery may be made. No manufacturing is contemplated in the beginning, but eventually the company expects the demand to become such that manufacturing will be necessary. The shop will be complete with high grade equipment. Further announcement would be premature at this time."

To Complete Interconnection of Systems in Northwest

To provide the last link of the interconnected power transmission system between Billings, Mont., and Seattle, Wash., the Washington Water Power Company of Spokane, will, in the near future, start construction on a 110,000-volt transmission line between Wallace and Burke, Idaho. The line will be 7 miles long and is to be completed late next fall.

The tie line will link the lines of the Washington Water Power Company and those of the Montana Power Company, thus making the interconnected system across the northern border of the states of Montana, Idaho and Washington six hundred and fifty miles long, measuring as the crow flies. When the line is completed the connection will be by the Montana Power Company, the Chicago, Milwaukee & St. Paul Railway, Washington Water Power Company and the Puget Sound Power & Light Company.

Surveying for the new line has been started and the route to be followed will be from the Montana Power Company substation east from Burke, to the 60,000-volt line of the Washington Water Power Company at Wallace. An out-door substation will be built at Wallace. Suspension type insulators will be used to carry the three transmission line wires. Construction crews will start setting poles late in August.

California Public Works Board Issues Power Permits

The Department of Public Works of the State of California has recently issued to Edward Fletcher of San Diego, Calif., a permit to appropriate 50 sec.-ft. of water from Boulder Creek in San Diego County. The water is to be used for developing 9,222 hp. Mr. Fletcher estimates the cost of the development at \$390,000.

The Department has also issued a permit to the South San Joaquin Irrigation District to appropriate 950 sec.-ft. from the Stanislaus River in Calaveras and Tuolumne Counties. The District, which has its offices at Manteca, proposes to develop 7,557 hp. at an estimated cost of \$3,000,000.

The Mokelumne River Power & Water Company of San Mateo has made application for a permit to make use of a total of 80,000 acre-feet per year from the south and middle forks of the Mokelumne River and the north fork of the Calaveras River. The water is to be used for irrigation purposes and 16 miles of main canal are proposed. The estimated cost is \$1,200,000.

Merced Irrigation District Is Given Project License

A license for 50 years covering a power project on the Merced River, near Merced, Calif., has been granted to the Merced Irrigation District by the Federal Power Commission. The project consists of a reservoir with 281,000 acre-feet capacity, a concrete dam 320 ft. high, a pressure tunnel 1,800 ft. long, and a power house which will operate under a maximum head of 320 ft. and an average head of 250 ft. The installed capacity of the plant is to be 25,000 kw.

The dam and reservoir will be constructed primarily for irrigation and storage, the water being released through the power plant and re-diverted 8 miles downstream. A system of canals will carry the water to the 200,000 acres included in the irrigation district. The construction of the reservoir will necessitate the relocation of 17½ miles of the Yosemite Valley Railroad at a cost of about \$2,500,000.

The district has entered into a 20-year contract to sell practically all of the power to the San Joaquin Light & Power Corporation, reserving only the small amount needed at the plant and storage works. The total investment is estimated to be \$13,478,000.

One Day Convention Is Held by Denver Electragists

Proper estimating including the exact knowledge of overhead costs and the results of the Eidlitz plan as now being developed in Greater New York, were the chief subjects of the one-day convention of the mountain division of the Association of Electragists, International, in Denver, Colo., July 16. James R. Strong, president of the national organization, Laurence W. Davis, director of promotion and development and A. P. Peterson, western field representative, who are making a tour of the United States, were present at the meeting.

The meetings, all of which were held at the Albany Hotel, started with a noonday luncheon, followed by the afternoon convention session with Mr. Strong presiding. The opening paper, "Organization," prepared by John F. Greenawalt, publicity manager of the Mountain States Telephone & Telegraph Company, was presented by his assistant, Joseph E. Moorhead.

The Manual of Estimating issued by the national association was the basis of the address given by Mr. Davis, his subject being "Estimating and Selling the Job." Large photostat copies of estimating sheets, used with the manual, aided in the presentation of the subject as did comprehensive charts on overhead costs, according to reports from Denver. Mr. Peterson made his first official visit to Denver at the convention and spoke of the recent residence wiring survey conducted under his direction at Minneapolis and St. Paul.

At the dinner in the evening, President Strong laid special emphasis on what the association has done, is now doing, and what it plans to do in the future. He strongly advocated closer cooperation among local contractors and urged their support of the Denver Electrical Cooperative League. He said that the benefits to be derived from an

association are directly proportionate to the amount of time and study devoted by the members to the educational data supplied by the association. He urged the members to be first electragists and second to give at least five hours a week to the study of their own particular business.

E. C. Headrick, former president of the Denver Contractor-Dealers' Association and past chairman of the Electrical Cooperative League in that city, presided at the evening dinner, as the



Laurence W. Davis and James R. Strong

mountain division representative on the national executive committee of the Association of Electragists International. Alex Hibbard, secretary of the Denver Contractors' Association, Inc., and also of the state association, made all arrangements for the convention which had a maximum attendance of 80. Henry Tewksbury was in charge of registration. A reception committee consisting of John Hancock, Clark Rider, and D. D. Sturgeon also functioned. A large representation from the manufacturers, jobbers, and central station in Denver attended the meetings.

One hundred and seven Simplex cabinet type electric ranges are to be installed in the Huntington Apartments now being erected in San Francisco at California and Taylor Streets. Each will have a capacity of 7.7 kw. The installation was sold by "Doc" Libbey, western sales representative of the Simplex Electric Heating Company. The Huntington Apartments will be the largest apartment house building in San Francisco.

Installation of the largest radio station on the Pacific Coast will be made either at Aberdeen, Wash., or at Hoquiam within the next four months, according to Antone Aberdeen, Seattle radio engineer. This radio station is to be the Pacific Coast terminal of the Alaska Communication Company, a newly organized commercial radio concern.

Intensive Street Lighting Plan Started by San Diego

Street lighting, with an accent placed upon the word "lighting," is in a fair way to being considered seriously by the City of San Diego, Calif. With several street lighting projects under construction and several more in petition, electrical men of that city look forward to an era of well lighted thoroughfares in the near future.

Contract was recently awarded and work begun on a system of ornamental street lights for La Jolla, a suburban district within the city limits of San Diego. One hundred and twenty new street lights fitted with 400-cp. lamps will be installed there. The standards are to be of concrete with Novalux fixtures. Lights contracted for will run down Prospect, Wall, Girard and Exchange Places, the latter to the golf links. Other sections of the community are lining up for similar lighting.

Work has also started on the installation of fifty-eight 600-cp. single lamps on Broadway, in San Diego, between Eighth and Sixteenth Streets, mounted on 15-ft. concrete poles. Impressed with the type of light standard, the district adjacent, that between Sixteenth and Twenty-fifth on Broadway, is actively signing petitions for similar lighting.

B and C Streets, from Seventh to Twelfth Streets in San Diego, are to have a street lighting system calling for 164 posts, with the same type standard and lamp. Petitions for the latter have been approved by the city council.

As an experiment in better street illumination, a limited district, comprising the block between E and F Streets on Sixth Street, in front of the Electric Building, and extending on F Street in front of the Maryland Hotel, will be lighted with two light standards of 24-ft. light centers, each light to be of 600 cp. This experiment is expected to bring forth the desire of adjacent streets for better illumination.

Claiming that it will be the best lighted residential district in the state, Burlingame, a residential section of San Diego, is planning on an unique lighting system. This district plans to have installed 45 light standards, 16 ft. in height, each of 600-cp., so as to light up not only the fronts of all residences in the district but its back yards as well. Simplicity in the design of the lamp standard will be sought as well as maximum of light, so that the system will at once provide an ornamental and yet a practical lighting district.

The Colorado Public Utilities Commission is now considering the application of the Oak Creek Service Company for permission to raise its rates for electric service. On account of the objections received from residents of the community, a public hearing was held early in July. This is the first case of a utility asking for an increase since the petition of the Colorado Power Company was denied nearly a year ago.

The Federal Power Commission has granted a fifty-year license to the Idaho Power Company, covering the company's transmission and distribution system, consisting of twenty-nine transmission lines throughout the Snake River basin in southern Idaho and Oregon, aggregating 420 miles in length.

P. G. & E. Announces Changes in Commercial Department

Several changes in the personnel of the commercial and public relations departments of the Pacific Gas & Electric Company have been announced as a result of the combining of the duties of the vice-president in charge of public relations with those of the vice-president in charge of sales. R. E. Fisher, who formerly held the latter position, now performs the duties of both offices.

The sales department will be under the supervision of a sales manager who will have general control of all matters relating to the sale of electric energy



DON C. RAY

and appliances, gas and appliances, water within municipal boundaries, steam and all other sales. H. M. Crawford will fill the position of sales manager. Under him will be H. E. Sandoval as manager of electric sales and F. U. Naylor as manager of gas sales.

The position of manager of the commercial department will be filled by N. R. Sutherland. His duties will deal with the interpretation of rate schedules and regulations, adjustments of disputes and the preparation of contracts and contract renewals.

J. Charles Jordan will hold the position of manager of the publicity department while R. W. Robinson will be assistant to the vice-president in charge of public relations and sales.

The newly created position of manager of the department of public relations will be filled by Don C. Ray, former manager of electric sales. Mr. Ray's connection with the electrical industry started shortly after 1896 when he was graduated from Oregon Agricultural College. In 1901 he was employed as a collector by the Nevada County Gas & Electric Company, which was later absorbed by the Pacific Gas & Electric Company. By 1911 he had risen to the position of assistant manager at Grass Valley and shortly after the company became part of the larger utility he was made manager of the Martinez office. In 1921 he was brought to the San Francisco office as assistant manager and in 1922 was made manager of electric sales.

May Abandon Saanich Peninsula Interurban Railroad

At a conference with the Victoria Chamber of Commerce and representatives of the surrounding municipalities,

on July 16, A. T. Goward, vice-president of the British Columbia Electric Railway Company and manager of the company's business on Vancouver Island, stated that unless the heavy losses on the interurban line up Saanich Peninsula can be substantially reduced the line would have to be abandoned. The construction of the line cost the company \$1,000,000, and by tearing it up and selling the rails and equipment \$250,000 could be salvaged, Mr. Goward stated. The company is running behind \$36,000 per year on this investment, owing to competition by motor buses and auto traffic.

The conference was called with the view of seeking some remedy, either by prohibiting the use of motor buses through the municipalities or by taxing them out of business, but the representatives present did not favor such a move, in fact, W. H. Dawes, secretary of the Sidney Board of Trade, suggested that the rails be pulled up and the right-of-way made into a first-class motor road.

The line in question is about 24 miles long, and runs from Victoria to the end of the Saanich Peninsula, passing within about a mile of Sidney. There appears to have been a lack of vision when the line was constructed in not running it into Sidney, which is a growing town with several industries. Mr. Goward admitted that if the line were diverted to Sidney it probably would improve its business, but he said there would be difficulty in raising money for the purpose at this time. The company makes its profits from the sales of gas and electricity, rather than from the operation of its extensive railway system.

Erection of Dam Forerunner of Development Project

As the result of the granting of a permit to erect a dam at Scott's Flat on Deer Creek in Nevada County, California, the Excelsior Water & Power Company there will erect a dam which will at first be 110 ft. high and about 1,000 ft. long. A reservoir of approximately 60,000 acre-feet capacity will be formed by the dam.

The first unit which will be used entirely for irrigation purposes will be completed in 1924 if present expectations are fulfilled. The company eventually intends to invest about twenty-seven million dollars in a program of irrigation and hydroelectric power development, according to W. G. Allen, general manager of the company. The development plans call for the irrigation of 110,000 acres and the generation of 127,000 hp. The initial dam will cost about five hundred thousand dollars.

Market Street, City Hall Plaza and the Civic Center group of buildings in San Francisco are to be brilliantly illuminated during the visit of President Harding. Plans for the work were recently given sanction by the committee in charge of illumination. Mayor Rolph has authorized Ralph W. Wiley, chief of the city department of electricity, to do the work and in addition to install a public address system so that persons outside of the Civic Auditorium may hear the address delivered by President Harding. The address will also be broadcasted.

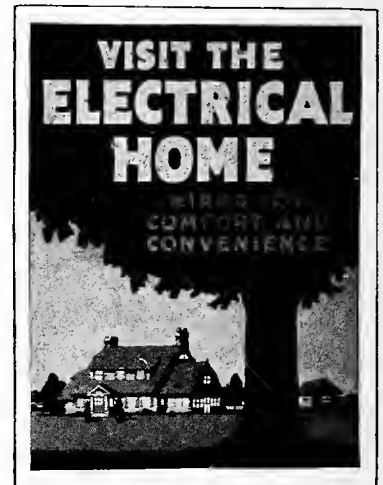
Development of Power in Idaho by Government Proposed

Congress will be asked to make an appropriation of \$450,000 to erect a hydroelectric power plant at the foot of Arrowrock Dam to furnish electricity for a pumping plant in the Gem irrigation district in central Idaho. The plan is that of Congressman Addison T. Smith, who has been in Boise, Idaho, making a personal investigation of the Gem project. Mr. Smith has discussed with landowners his proposal to acquire power from the impounded water behind the big dam located 22 miles east of Boise.

There are 30,000 acres of land in the Gem project, of which 20,000 are under irrigation. Mr. Smith's plan is to make use of the lower outlets of the big dam, through which runs many times the amount of power that would be necessary to generate sufficient electricity to operate the plant. The Gem district was originally the Boise project, the largest government project in the United States at the present time. The lands were later excluded from the Boise project, and private capital was furnished to provide an irrigation system for them.

Poster Stamp Produced to Aid in Electric Home Exhibits

As a supplementary aid to the electric home committee in calling attention of the public to the electric home exhibit, the Society for Electrical Development has recently produced a four-color poster stamp. This stamp may be attached to any form of printed matter



Reproduction of new four-color poster stamp.

and on parcels. The design is particularly attractive and the vividness of the color should attract considerable attention.

The Society now has a complete assortment of material to assist the committees in charge of electric homes. The material consists of a monograph, "Organizing and Exhibiting the Electric Home"; a consumer booklet, "My Own Electric Home"; and a comprehensive advertising service made up of publicity items, metal arrow signs, poster stamps and lantern slides. Information concerning any of this material may be secured from the Staff Headquarters, 522 Fifth Avenue, New York, N. Y.

Denver Electrical League Drive for Funds Progressing

Reports from the Electrical Cooperative League of Denver, Colo., indicate that the start of its third fiscal year, July 1, is an auspicious one as evidenced by the subscriptions already obtained. With a budget increase of nearly \$3,500 over the previous year, total pledges during the first two weeks in July amounted to \$11,588.

All eight of the Denver jobbing houses were the first to meet their increased quota and were followed closely by the Denver Gas & Electric Light Company which raised its subscription to an amount approximating 50 per cent of the budget raised to date. Replies from manufacturers are being received promptly. There is some delay with the contractor-dealers, according to Clarence Keeler, chairman of the membership committee.

The central stations operating in territory adjacent to Denver have also subscribed to the campaign for the first time. They are the Arapahoe Light & Power Company of Littleton and Englewood and the Jefferson County Power & Light Company at Golden. W. C. Sterne, chairman of the Rocky Mountain Committee on Public Utility Information, is president and manager of the former while E. A. Phinney, prominent in the affairs of the Rocky Mountain division of the National Electric Light Association, directs the latter. The Mountain States Telephone & Telegraph Company has also renewed its pledge to the League.

A report of the past year's activities was submitted to the Advisory Board by S. W. Bishop, executive manager of the Denver organization, and will be used as the basis of the annual report to be printed shortly.

International Electragists Hold San Francisco Meeting

That the need for clear understanding of a uniform method of computing overhead and the uniform application of this overhead to a job are two of the greatest problems which are facing the electrical constructionist today was the message delivered by Laurence W. Davis, director of promotion and development of the Association of Electragists International at the San Francisco regional meeting of the organization July 23, 1923.

The meeting was one of a series which are being held throughout the country. In the West meetings were held at Denver, Los Angeles, San Francisco, Portland, Seattle and Vancouver. Accompanying Mr. Davis and participating with him in the program were James R. Strong, president of the association, and O. C. Small of the Society for Electrical Development, Inc., both of New York City.

The subject of Mr. Davis' address was "Estimating and Selling the Job." During the course of his talk he pointed out the use of the new manual of estimating which has been issued by the association and estimated a typical job. He described the strides which have been made in Milwaukee in raising the standards of electrical installations and in eliminating destructive competition since the adoption of the manual by the majority of contractors in that city.

One of the interesting exhibits which he presented to support his statements was a chart analyzing the business of a number of contractor-dealers whose annual business ranged from \$13,000 to \$100,000. The overhead in each case was analyzed to show that an average percentage could not be adopted by all contractor-dealers with any degree of safety.

Mr. Strong described the Eidlitz plan which has been adopted by the contractors of New York City and explained what has been done in that city to bring order into the contracting business. By adopting a uniform method of computing labor costs on a job, business has been put on a sound basis and the goodwill of architects, builders and general contractors has been secured. Under the plan, Charles Eidlitz, a retired contractor who had made a success of the business, has been made commissioner with a free reign to investigate costs and methods of doing business and to settle all disputes which arise between the contractor and his client. Charts of jobs which have been done since the adoption of the plan were presented to demonstrate its success.

The work of the Society for Electrical Development was described by Mr. Small, who pointed out the steps which are being taken by this organization to popularize the use of electric appliances and to aid the industry in selling them.

The afternoon meeting was followed by an informal banquet in the evening in honor of the visitors. A feature of the banquet was the description of the situation in the electrical industry in California given by various members of the industry. More than 50 attended the banquet.

The construction of the Mystic Lake plant of the Montana Power Company is progressing. The contract having been awarded to the Montana White Company, of Billings, for the transportation of more than two million pounds of material and machinery, presages that the power plant will be completed by the first of next February.

Idaho Power Company Is Seeking Higher Power Rates

An application for an increase in power rates has been made to the Idaho Public Utilities Commission by the Idaho Power Company. The company bases its claim on the valuation fixed by the Commission in 1919 together with additions that have been made up to Dec. 31, 1922. The company's valuation is in excess of seventeen million dollars.

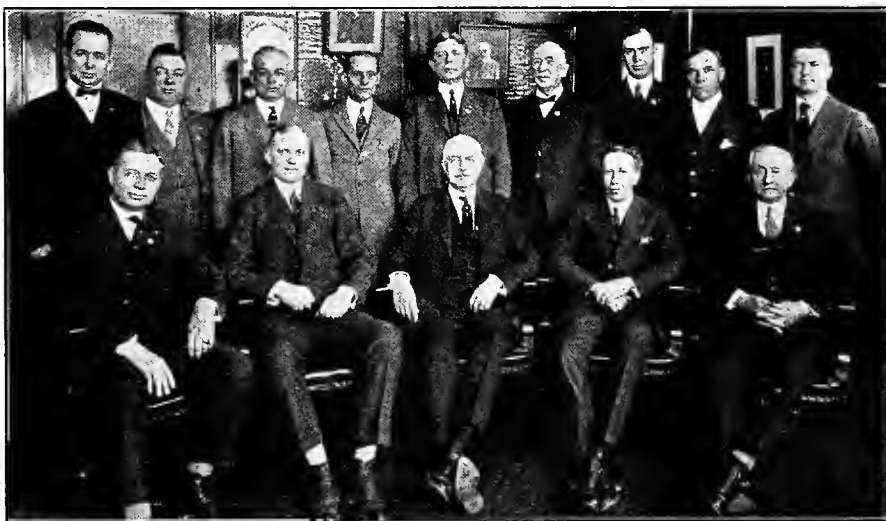
The Idaho commission has stated that public utility companies are entitled to a return of 8 per cent on capital investments in service and the company claims that an increase in rates is necessary to make this return. Any increase is being fought by the Idaho Power Users' Association.

The Idaho Power Company has filed a new set of rates which it wishes to become effective Oct. 1. The state commission has ruled that this tariff can not become effective until Oct. 20. Further hearings on the rate increase will be held Sept. 10. At that time the matter of bringing the company's valuation up to date will be considered.

Los Angeles Jobbers Open Office in San Francisco

Listenwaller & Gough, Inc., electrical supply jobbers of Los Angeles, have opened offices in San Francisco at 940 Mission Street. The move has been occasioned by the desire to better serve the territory for which the company acts as distributors.

The new offices are in charge of William H. Kaemper, who holds the position of district manager. Previous to joining the jobbing firm, Mr. Kaemper was connected with the Electric Lighting & Supply Company, electrical dealers of Los Angeles. Listenwaller & Gough, Inc., are distributors for the following lines: Royal vacuum cleaners, Estate ranges, American Beauty heating devices, Bryant, Benjamin, Trumbull, Union and Johns-Pratt wiring supplies and Rome wire.



Executives of the Denver Gas & Electric Light Company assembled in the office of Clare N. Stannard, vice-president and general manager. Reading from left to right the men are: (sitting) R. G. Gentry, commercial manager; V. L. Board, general superintendent; Clare N. Stannard, vice-president and general manager; Harry T. Hughes, treasurer; M. E. Malone, manager of coke department; (standing) Guy B. Hopkins, acting auditor; O. L. Mackell, office manager and chief clerk; C. F. Oehlmann, manager of steam heating department; George Wehrle, superintendent of gas department; George W. Bixler, publicity and advertising manager; F. A. Tewksbury, manager of safety and claims department; R. G. Munroe, assistant commercial manager; George McDermand, manager of tar and roofing department; and D. C. McClure, superintendent of electric department.

Transmission Line Being Built in Eastern Oregon

A mile and a half of high tension transmission line is now being constructed by a crew of the Eastern Oregon Light & Power Company, of Baker City, Ore. The line is to connect the present steam generating electric plant in South Baker with the entire transmission system, the connection to be made near the present Baker City substation, according to J. P. Lottridge, vice-president of the company.

Electricity generated at the steam plant will be stepped up from 2,300 volts to 23,000 volts by three transformers, and will be delivered into the transmission system at that voltage. The portion of the current used in Baker City will again be stepped down at the local substation. The cost of the work will exceed \$6,000. A total of 79 poles will be used, there will be 370 insulators and over 3,700 lb. of copper wire will be strung.

Construction of this line is in preparation for the delivery of the added power which will be supplied when the large addition to the steam generating plant is completed.

Seattle League Fostering State Wide Public Ownership

Outlines of a program to secure state wide public ownership of hydro-electric power projects in Washington were recently presented at a meeting of the Public Ownership League of Seattle. Oliver T. Erickson, Seattle councilman and a profound supporter of public ownership, was named as president of the organization. Mr. Erickson has signified that he wants three women to fill the chairs of the vice-presidents of the organization.

The League is consistently working to force the public ownership of power companies upon the people of Washington. One or more delegates will be sent to the International Public Ownership Convention to be held in Toronto in September.

Mr. Erickson proposes that a bill similar to the California Water and Power Act be sponsored by the League at the next election so that sufficient funds can be secured by the state to enable it to enter into the production of power on a large scale.

National Representatives Speak Before Los Angeles Men

The largest and most spirited meeting ever conducted by the contractor-dealer branch of the electrical industry in southern California was held in Los Angeles, Friday evening, July 20, under the auspices of the Electrical Contractors and Dealers' Association of Los Angeles. Two hundred and fifty members of the electrical industry gathered at the Paulais Cafe for a banquet held in honor of James R. Strong, president, and Laurence W. Davis, director, department of promotion and development of the Association of Electragists International, and O. C. Small of the Society for Electrical Development.

This meeting was unique in that all arrangements were made by the Contractors and Dealers' Association of Los Angeles, and without the help of the various other branches of the industry, and also in view of the large

number of contractors and dealers present. Of the total attendance at least sixty per cent were contractors and dealers. Besides 75 members of the local association there were about sixty members of the Electrical Safety Exchange of southern California present, these being from north Orange County, San Pedro, Long Beach, Glendale and Burbank.

Addresses were made by President Strong and Mr. Davis of the Association of Electragists International and by Mr. Small of the Society for Electrical Development. Mr. Strong gave a resumé of the work that the association has done and its plans for the future, and also stressed the importance of association work and stated that they should have more members on the Pacific Coast than they have. Mr. Davis delivered a very forceful address on some of the various work that is being done by the association for the benefit of its members and what it hopes to accomplish in the future. He explained in considerable detail the "Manual of Estimating" that has been perfected by the association and presented a chart with an actual problem worked out. Mr. Small spoke on the work that the Society for Electrical Development is doing in the merchandising field and how they are trying to assist in the increased sale of electrical appliances and devices. He also explained the workings of the organization and its reasons for existence. C. L. Breakman of Glendale spoke on the "Electrical Safety Exchange of Southern California—Its Organization and Membership." H. H. Walker, president of the Electrical Contractors and Dealers' Association of Los Angeles, presided as toastmaster.

Packard Electric Company Head Is Honored at Dinner

To celebrate the completion of twenty years of service with the Packard Electric Company, Warren, Ohio, twenty-four of the executives of the company and other business friends made N. A. Wolcott, president and general manager of the concern, the guest of honor at a surprise dinner held at an inn outside of Warren. During the evening a program consisting of speeches dealing with various impressions of Mr. Wolcott and musical and radio numbers was presented.

Mr. Wolcott joined the Packard Electric Company in 1903 and since then has been connected with the company which he now heads. His first position with the company was that of designing engineer and from this he was promoted to general manager. While serving in this capacity, Mr. Wolcott and R. E. Gorton bought out the Packard interests and Mr. Wolcott became president and general manager.

The Southern Idaho Land & Power Company, owning a large reservoir in Crane Creek, Washington County, Idaho, has applied to the Federal Power Commission for a preliminary permit for a proposed project which contemplates the diversion of flood waters from Little Weiser River into Crane Creek Reservoir and the construction of a power plant below the reservoir. The proposed plant would develop 20,000 hp. to be used in pumping for irrigation during the summer months.

Pacific Gas & Electric Company Dedicates New Building

The East Bay headquarters for the Pacific Gas & Electric Company at Clay and Seventeenth Streets in Oakland, Calif., was officially dedicated recently. At that time the late John A. Britton placed the copper box of relics behind the cornerstone of the building and put in the first trowelful of mortar that was to hold the cornerstone.

Following this ceremony, dedication ceremonies were held in the assembly hall of the building. Lee H. Newbert,



New building of the Pacific Gas & Electric Company in Oakland, Calif.

East Bay division manager of the company, presided at the meeting and introduced Mr. Britton, who spoke of the history of the public utility business in Oakland from the early seventies to the present time. Joseph Worthington, chairman of the Pacific Service Employees' Association and Wigginton E. Creed, president of the company, were the other speakers. Mr. Creed remarked concerning the industrial development of Oakland. Frank A. Leach, Jr., now vice-president and general manager, also made a short address.

The new building, which was erected at a cost of about \$350,000, is one of eight stories with granite base and walls of flame colored terra cotta. A series of sunbursts over the arched opening in the eighth story gives the building a most attractive appearance at night. The main offices, where customers are cared for, are located on the first floor, and a display room for gas and electric appliances is maintained in the basement. Offices of the various departments are on the floors between the first and seventh.

The load dispatcher's department is located on the seventh floor. All the service lines in the northern part of the state are controlled from the load dispatcher's control board. Special telephone wires give the dispatcher ready communication with all generating plants.

To Present Window Displays in Thirty-nine Cities

Merchants of One Hundred and Thirty-six Northern California Cities to View Educational Lighting Exhibit

To present the better merchandising exhibit of the California Electrical Co-operative Campaign to the merchants of 136 cities and towns of northern California, the portable display of the Campaign will be driven 1,340 miles during the next three and one-half months. While on this trip 39 shows will be conducted in locations that are so situated that the merchants of 97 adjacent towns can be invited to attend the exhibition. The population of these 136 cities and towns is 471,633.

In the territory that will be covered by the tour, there are 142 newspapers with a total circulation of 277,000. In all cases where the portable window display has been presented newspaper publicity has averaged between 10 and 12 column inches per paper. If this same average is maintained during the coming tour, a total of between 1,420 and 1,704 column inches of free publicity will be secured by the electrical industry. All of these figures exclude the cities of San Francisco, Oakland, Alameda and Berkeley.

The tour has been occasioned by the success that has followed a partial tour of the cities in the southern part of the state. As direct results of the campaign that was presented there the following installations were made:

A department store in Los Angeles installed 700 reflectors in its show windows. Another department store in the same city installed 300 reflectors in its show windows.

In one Los Angeles building the stores installed 400 reflectors in their windows.

In another building in the same city 160 reflectors were installed.

Three stores in Riverside installed complete window lighting equipment.

In Pomona and Santa Ana three retail stores in each place ordered new lighting equipment.

In Santa Barbara new lighting outfits were placed in six retail stores.

Direct results in the San Francisco Bay region include the purchase by one San Francisco furniture store of several hundred reflectors and the installation of several hundred reflectors in a men's furnishing store in Oakland. These results were obtained from the initial displays made in both San Francisco and Oakland.

The window display was presented at the annual meeting of the retail furniture dealers of California early in the year and as a result the intensity of lighting in many small dealers' stores has increased appreciably, according to traveling men who have covered the state. At the quarterly meeting of the San Francisco Retailers' Association, held July 27 in San Francisco, the display was presented by Clarke Baker, National Lamp Works, Oakland, to about one thousand members of the sales staffs of the eight hundred member companies.

V. W. Hartley, assistant to the manager of the Campaign, will be directly in charge of the tour that is to start Aug. 3. From that date until Nov. 16, Mr. Hartley will present the display approximately every other night. The display will be held in a different city each night and traveling between towns will be done during the day.

Preparations for the exhibit are to be made by the district manager of the power company that serves the city. This man is to place the matter before the local chamber of commerce or retail dealers' association and will have one of these bodies send invitations to

the retail dealers of the city and adjacent towns. In the larger places, local dealers will be asked to trim the window display, but where no suitable window trimmer is available, Mr. Hartley will do this himself.

The display that is to be used on the tour is in reproduction of a merchant's window and is approximately 12 ft. long, 12 ft. high and 6 ft. deep. The window is equipped with lighting units making possible the illustration of just what effect varying intensities of illumination have upon the merchandise on display, as well as the effects to be secured through the employment of colored lights, combination of colors, spot-lighting, etc. A stock window-trim of merchandise is carried with the display, the entire exhibit being transported through the territory on an automobile truck.

A condensation of the itinerary is presented below. Names of cities and towns in which the display will be presented appear in capital letters and names of adjacent communities from which merchants will be invited are in lower case letters. Central station companies serving the cities are noted by figures in parentheses.*

Aug. 3—SAN RAFAEL; Sausalito, Mill Valley, San Anselmo; (5).

6—SANTA ROSA; Petaluma, Healdsburg, Sebastopol; (3). (5).

8—NAPA; Sonoma, St. Helena, Calistoga; (4).

10—VALLEJO; Benicia; (5). (9).

13—VACAVILLE; Suisun-Fairfield, Dixon, Winters; (3). (5). (8).

15—WOODLAND; Davis; (5).

17—ANTIOCH; Pittsburg, Byron, Brent-

20—WILLOWS; Orland; (5).

22—RED BLUFF; Gerber, Tehama; (5).

24—REDDING; (5).

27—CHICO; (5).

29—OROVILLE; Gridley; (5).

31—MARYSVILLE; (5).

Sept. 4—ROSEVILLE; Lincoln, Wheatland; (5).

6—AUBURN; Newcastle, Colfax; (5).

8—SACRAMENTO; (5).

12—LODI; Galt, Woodbridge, Lockford; (5). (10).

14—STOCKTON; Lathrop, Tracy.

17—ANTIOCH; Pittsburg, Byron, Brent-

19—OAKLAND, BERKELEY, ALAMEDA;

to 27 Richmond; (3). (6). (10).

Oct. 1—SAN JOSE; Milpitas, Santa Clara, Sunnyvale; (5).

3—SANTA CRUZ; (1).

5—WATSONVILLE; (1).

8—SALINAS; Monterey, Pacific Grove; (2).

10—KING CITY; (1).

12—HOLLISTER; (1).

15—GILROY; (1).

17—REDWOOD CITY; San Mateo, Mountain View, Mayfield, Palo Alto, Menlo Park; (4).

18-21—Return to SAN FRANCISCO.

22—HAYWARD; (5).

24—LIVERMORE; (5).

26—MODESTO; Ripon, Ceres, Turlock; (5).

29—MERCED; Livingston; (6).

Nov. 2—FRESNO; Sanger, Selma, Fowler; (6).

5—DINUBA; Reedley; (7).

7—VISALIA; Hanford, Exeter; (7).

9—TULARE; Lindsay; (7).

12—PORTERVILLE; Delano; (7).

14—BAKERSFIELD; (6).

16—TAFT; Maricopa; (6).

- * (1) Coast Counties Gas & Electric Company.
 (2) Coast Valleys Gas & Electric Company.
 (3) Great Western Power Company.
 (4) Napa Valley Electric Company.
 (5) Pacific Gas & Electric Company.
 (6) San Joaquin Light & Power Corporation.
 (7) Southern California Edison Company.
 (8) Vacaville Water & Light Company.
 (9) Valley Electric Light & Power Company.
 (10) Western States Gas & Electric Company.

Books and Bulletins

A SYMBOL OF SAFETY

By HARRY CHASE BREARLEY. 290 pages, 83 illustrations, 6¼ x 9¼ in. Published by Doubleday, Page & Company, Garden City, N. Y.

A most comprehensive survey of the activities of Underwriters' Laboratories, Inc., this book deals with the organization of that institution and describes the need that is present for greater safety in every day life. The operation of the Laboratories in regard to tests that are made on almost every type of equipment used in commercial, industrial or home life is brought out in a most interesting manner.

The thousands of tests that are made in the Laboratories to determine the value of equipment subjected to these trials by engineers have done much to bring forward equipment which can be relied upon by the public. The tests are made, according to the book, in order to determine whether the device is of sufficient merit to warrant the granting of the Underwriters' label. In almost all cases throughout the text, in addition to describing the tests that are applied, the requirements that the devices must meet, are presented.

The volume covers tests varying from those performed on building materials to determine their conduct under strain, fire and water, to tests to provide for the granting of certificates of airworthiness of air craft. The attention of the Laboratories to electrical equipment is described at some length.

The book presents in an interesting and non-technical manner information concerning the technical tests made in the Laboratories and gives the reader a comprehensive idea of what is being done. Architects can secure from it valuable ideas as to what they should require in their specifications to secure absolute safety in buildings.

ABBEY'S REGISTER NORTHWEST LUMBER INDUSTRY

Published by The Industrial Service Company, Portland, Ore. 312 pages. 6½ x 7¾ in. Cloth \$2.50, paper \$1.85.

The book is the first complete directory of the Northwest lumber industry giving the names of 6,000 firms in California, Oregon, Washington, Idaho, Montana, Arizona, Nevada, British Columbia and Alaska. The firms are divided under the following classifications: saw mills, planing mills, shingle mills, logging operators, box shook manufacturers, furniture manufacturers, sash and door manufacturers, cooperative manufacturers, wholesalers, general stores, camp commissaries and veneer manufacturers.

The listing indicates what species of lumber is sawed, kind of head saw and the mill's capacity, whether equipped with edgers, trimmers, gang saw, re-saw, dry-kiln, planing mill, shingle mill, lath mill, box shook machinery and also if company operates a logging camp. The names are classified alphabetically by states and cities. Mention is made of the shipping facilities the companies have.

Meetings

Convention of Electrical Clubs to Be Held in September

The second conference of electrical leagues and groups interested in forming local cooperative organizations has been called to meet at Association Island, N. Y., Sept. 16-19. The conference, which will be known as Camp Cooperation III, will be held under the auspices of The Society for Electrical Development.

The first conference of local electrical leagues was held last September. Those who attended felt that much good was accomplished and the feeling was quite general that the conference should be made an annual affair. Through an appropriation made by the executive committee of The Society for Electrical Development, the funds have been made available for this year's meeting and it is expected that a large and representative gathering will be on hand for Camp Cooperation III.

Invitations have been sent by the Society to electrical leagues and clubs and to others interested in local cooperative activities. Every activity has been made to reach all groups and individuals who should be included in a conference of this sort, in order that the discussions may bring out all viewpoints from all sections. Bulletins will be issued at frequent intervals from headquarters of the Society supplying all necessary information to those planning to attend.

Los Angeles Electric Club Will Hold Annual Outing

The first annual outing of the Electric Club of Los Angeles, Calif., is to be held Aug. 24 and 25. The outing will be in the form of a boat trip to San Diego. The program as outlined calls for the party to leave Los Angeles on Friday night on a special train that will take them to Wilmington where the party will board the steamship Ruth Alexander. The vessel will arrive at San Diego on Saturday morning and the party will spend the day ashore.

In the morning the visitors will amuse themselves and in the afternoon a program of races and sports has been arranged. A box dinner will be served on the lawn at Balboa Park in the evening. The return to Los Angeles will be started Saturday evening, the party arriving in the city at about 9:30 Sunday morning. The cost for the entire trip is \$10.50.

Seattle Light Department Asks for Budget Increase

An increase of \$568,691.67 in the 1924 budget of the Seattle municipal light department, which totals nearly \$3,000,000, is asked in the estimate filed with the city council. The department asks \$2,981,066 for next year, as compared with \$2,412,375 for 1923. A large part of the increase in operating expenses is for additional employees to

man the Skagit River hydroelectric plant which is scheduled for completion about January 1.

Another large item in the increase is for interest on bonds issued by the department. Interest of \$864,741.67 must be paid on utility bonds next year, an increase of \$95,466.67 over this year, and interest on general bonds of the department will cost \$124,255, an increase of \$4,800 over 1923. All of the expenses of the department are to be paid out of its earnings. The estimate calls for redemption of \$215,000 of general bonds and \$126,000 of utility bonds, redemptions exceeding those of 1923 by \$126,000.

Driving of Tunnel to Pit No. 3 Power House Started

Driving of the 20,000-ft. tunnel of the Pacific Gas & Electric Company that is to carry water to Pit No. 3 Power House was started July 22. Work started on the eastern portal of the tunnel. When completed the tunnel will be part of the diversion system that

COMING EVENTS

Convention of Electric Clubs—

Annual Convention—Association Island, N. Y.
Sept. 16-19, 1923

Rocky Mountain Division—National Electric Light Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

Colorado Public Service Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

American Institute of Electrical Engineers—

Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

leads water from Pit River to Pit No. 3 Power House.

Two separate tunnels are to be drilled out of the rock and the ends of these will be cemented together in order to deliver water to the power house at an effective head of 300 ft. Four working faces will be used by the crews driving the tunnels.

The dam that will form a lake in the bed of Pit River is to be located 4 miles up stream from the power house. There a dam 110 ft. high will be erected, which will back up the river for a distance of 9 miles. The lake thus formed will be about a mile and a half wide at its widest part.

As the result of the new city administration in Denver, Colo., the electrical inspection department is reported to have had a material change in personnel. This is due principally to the appointment of C. F. Oehlmer, formerly one of the deputy inspectors and who replaced his chief Charles F. Oliver upon the election of Mayor Stapleton. Joseph Staples, formerly a small contractor, has been appointed a deputy to replace George J. Nevin while Lester Hall succeeds C. E. Pillars and E. R. Meyer takes the place left vacant by Oehlmer. John Malpiede was the only other inspector carried over.

V. H. Reineking of Portland, Ore., engineer for the Bend (Ore.) Water, Light & Power Company, has started a survey of the proposed 5,000-hp. development on Tumalo Creek.

Seattle Electric Show and Home to Be Ready Aug. 25

Directed by W. E. Jones of the Economy Fuse Company, president of the Electric Club of Seattle, the various committees of that organization which is sponsoring the "Electric Show and Electric Home" to be presented in Seattle, Wash., from Aug. 25 to Sept. 8, are speeding up work on the campaign. The electric home under construction is nearing completion and will be ready for occupancy some time previous to the show. It will cost about \$10,000.

The following appliance show committee has been appointed by President Jones, to function under the general management of W. H. Meacham, chairman of all committees: J. J. Agutter, J. J. Agutter Company, chairman; J. C. Hector, Fobes Supply Company; Arthur Williams, city lighting department; H. E. Boring, General Electric Company; Frank Lushington, Lushington Electric Company; Thomas R. Phelps, The Electric Shop; Frank Cooley, Western Electric Company.

Colorado Springs, Colo., is being urged as the convention city of the International Brotherhood of Electrical Workers as the result of a movement started by the local organization in that city and supported by the Chamber of Commerce. Letters have been sent to the 1,150 chapters throughout the country asking for support when the question is decided at the annual convention in Montreal, next week. The establishment of a national sanatorium at Colorado Springs by the International Brotherhood of Electrical Workers is also being considered.

Stating that San Francisco leads the world in street lighting, L. E. Voyer, assistant sales manager of the Edison Lamp Works San Francisco office, in an address to the Down Town Association recently, urged that the city should now take up the lighting of the highway leading down the San Francisco Peninsula. Mr. Voyer suggested that a system of high power highway lamps would greatly facilitate night traffic on the boulevards leading to San Jose and other cities to the south.

A large number of the electrical people of Salt Lake City, Utah, enjoyed an outing to Timpanogos Cave in American Fork Canyon on July 15. The outing was conducted by the Rocky Mountain Electrical Cooperative League, as the annual electrical outing, and proved to be a highly successful affair. It was decidedly different from the usual get-together parties, one of the main features being a long "hike" from the main canyon to the famous cave.

Before the tourist season opened in Colorado, the Electrical Cooperative League of Denver recommended to all communities maintaining auto camps the advisability of installing plenty of electric lights and where possible, facilities for electric cookery. As a result a number of improvements have been reported, the most recent being the installation of electric hot plates in the shelter house of the municipal auto tourist camp at Longmont, Colo., by Jay F. Brown, superintendent of electricity in that city.

Manufacturer, Dealer and Jobber Activities

The Westinghouse Electric & Manufacturing Company has issued the first number of a miniature publication entitled "Electric Heat." This publication, which will be published frequently, is devoted to industrial electric heating problems. In this issue there are articles concerning the use of electric heat in the manufacture of storage batteries, electric motors, and many other subjects. Of especial importance are articles by Prof. W. Trinks of the Carnegie Institute of Technology on "Advantages and Limitations of Electric Heat" and "Reduced Labor—A By-Product," by M. R. Armstrong.

The F. W. Wakefield Brass Company, Vermilion, Ohio, has recently announced that a new socket will be used in all "Red Spot" standard, ornamental and general-purpose hangers manufactured by the company. The socket was specially designed for the company by Pass & Seymour. The improvement, it is claimed, permits the hanger to be quickly wired without disassembling the socket from the hanger. The Wakefield company will issue a booklet describing the "Red Spot" line in the near future.

The Frank Adam Electric Company, St. Louis, Mo., has recently published Bulletin No. 29, which describes the Type P panel board manufactured by that company. The new board differs from others in that it is of sectional construction. Prices and descriptions of various size boards are given.

The Mutual Electric & Machine Company, Detroit, Mich., is placing on the market a new line of enclosed switches. The new switches will be known as "Junior" switches. The new switch will have punched parts and will be somewhat lighter in construction than the "Bull Dog" safety switches. The new switch will be cheaper than the "Bull Dog" line and is designed to meet conditions where service is not severe.

The General Electric Company has issued Bulletin No. 47,672, which describes control relays to be interposed between the circuit breaker solenoid and control switches. The relays described are known as the instantaneous control, type PB-53, and the hesitating control, type PB-54. The relays are used for the remote control of circuit breakers when it is undesirable to have the control current pass through the control switch.

The Edwin F. Guth Company, St. Louis, Mo., has placed on the market a new type fixture designed for kitchen use. The new fixture has a ceiling fitting and holder of white enameled steel and a spring holder is used to secure the glass in position. The fixture is supplied both with and without pull switch.

The National X-Ray Reflector Company, Chicago, Ill., has recently placed on the market three reflectors designed for use with 25 and 50-watt P-19 mill type lamps. One of the three is for factory use and the others are designed for use with display illumination. The new reflectors are all smaller sizes of standard X-Ray reflectors.

Edward Miller & Company, Meriden, Conn., through their Duplex-A-Lite Department, have recently placed on the market two new trimmings for Duplex-A-Lite units.

The United Electric Company, Canton, Ohio, manufacturers of Ohio electric leaners, has recently prepared for its dealers a set of three folders which are designed for distribution to customers. The literature describes the Ohio cleaner and is well suited to the use for which it is intended.

The Wise-McClung Manufacturing Company, New Philadelphia, Ohio, has announced several changes in organization and executive sales personnel. The changes became effective June 1. W. J. Wise, president of the company, will personally direct the general sales policy of the company, as well as of the affiliated organization, Sunshine Sales Company. The general offices have been transferred from Cleveland to New Philadelphia, and all wholesale business will be transacted from the latter city. H. N. Woollatt will be in charge of the sales work in the field and will retain his title as assistant to the president. The Wise-McClung Manufacturing Company manufactures American and Sunshine vacuum cleaners. The company will maintain its retail branches in New York City, Brooklyn, Philadelphia, Cleveland, Columbus, Pittsburgh, Altoona, Erie and Johnstown.

W. Wesley Hicks, heating engineer and manufacturer of Wesix heating products, has recently taken over larger quarters in the Rialto Building, San Francisco. Harry D. Mooney and A. Strauch, electric heating engineers, have taken an office adjacent to those occupied by Mr. Hicks' organization.

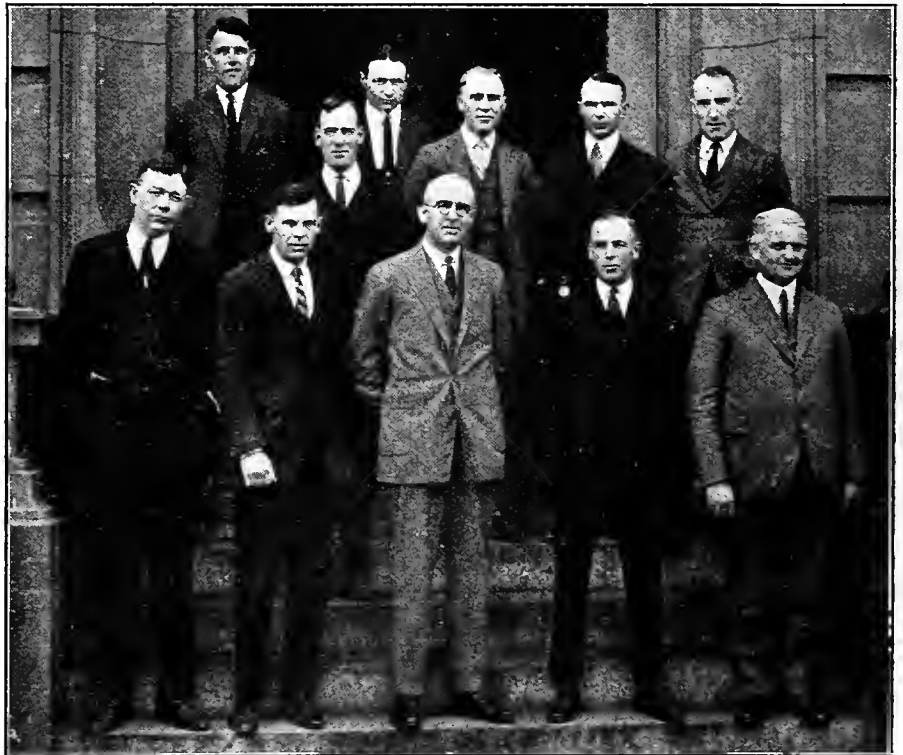
The Electric Appliance & Service Company is a new appliance, contracting and repair firm opened in Los Angeles, Calif., by D. K. McKinnon. The establishment is located at 5101 York Boulevard in the southern California city.

The Vaughn Electric Company, 4220 University Way, Seattle, Wash., has purchased the stock of the M & M Electric Company from the receivers of that firm. The company has also purchased the fixtures and shop equipment of the Sterling Electric Company of Tacoma. The Vaughn Electric Company will install a modern electric fixture and manufacturing establishment at 4240 University Way, where a large stock will be carried.

The Robbins & Myers Company, Springfield, Ohio, has recently gone into the production and marketing of its new Type L polyphase motors. These motors are made in a large range of sizes. The motors are said to have high power factors and improved starting torque. The method of ventilation is also a feature of design. Bulletin No. 135 contains details concerning the line of motors.

The Santa Fe Electric & Novelty Company has been organized in Santa Fe, N. M., by Mr. and Mrs. D. H. Atwater. The firm will install a stock of electrical appliances and fixtures. Mr. Atwater was formerly in the electrical business in Peoria, Ill.

The Trumbull Manufacturing Company, Plainville, Conn., has issued a supplement to Bulletin No. 4 describing its new motor-starting switches with overcad relay and under-voltage release coil. The switch will be placed on the market about the middle of August.



It is said that in Spokane, Wash., everyone smiles and tries to look happy. Here is a group of men who have a real reason for looking happy, for it was largely due to their efforts that the Washington Water Power Company completed the sale of 431 electric ranges and water heaters in six weeks. The city salesmen who are grouped around Lewis A. Lewis, sales manager, and R. B. McElroy, manager of the Electric Store, reading from left to right are: (top row) W. A. Johnston; J. F. Farquhar, general agent; R. Magart; R. Moon; R. B. McElroy; J. R. Wiedeman; (bottom row) L. A. Kent; M. E. Collins; Lewis A. Lewis; A. E. Lacroix; E. R. Hunt.

Personals

W. M. Meacham, chairman of the executive committee of Seattle's electric home, is one of the best known electrical contractors in the Puget Sound district. He is also known in other lines of industrial activity, having engaged, since coming to Seattle in



W. M. MEACHAM.

1905, in other work including general contracting and shipbuilding. Under the firm name of Meacham & Babcock, Mr. Meacham, the engineer of the company, constructed two large sub-aqueous tunnels in Seattle aside from other general contract work along this line. Meacham & Babcock also during the late war built, owned and operated the largest wooden shipyard in the Puget Sound district. This yard launched and delivered 12 ships to the Emergency Fleet Corporation. Mr. Meacham has been engaged in the electrical game nearly all of his life, starting in the industry in Chicago in 1889 with the Electric Construction Company. He attended the Chicago University, taking specialty work, after completing a course in the Lewis Institute. He is a native of the state of Kansas.

C. C. Hillis, vice-president and treasurer of the Electric Appliance Company, San Francisco jobbers, has recently returned from an extended visit throughout the East.

John P. Coghlan, former attorney for the claims department of the Pacific Gas & Electric Company, has been made assistant to the president.

Fred S. Myrtle, former manager of the publicity department of the Pacific Gas & Electric Company, has been made editor-in-chief of the company, a position formerly held by the late John A. Britton.

W. S. Berry, formerly sales manager of the Western Electric Company, San Francisco office, now manager, accompanied by Mrs. Berry, recently completed a business and pleasure trip throughout the Puget Sound district. A major portion of his time while away from San Francisco was spent in and around Seattle with Seattle executives of the Western Electric Company.

Phillip S. Biegler, professor of electrical engineering at the State College of Washington, Pullman, Wash., has severed his connection with that institution. At the end of July Professor Biegler will leave for Los Angeles, where he will become head of the department of electrical and mechanical engineering at the University of Southern California. He is a graduate of the University of Wisconsin and has been associated with the electrical engineering departments of Purdue University, the University of Montana and the University of Illinois.

G. N. Rankin, of the firm of Rankin & Esterbrook, contractors and dealers of Selma, Calif., has been appointed field representative for the California Electrical Cooperative Campaign for the San Joaquin Valley. Mr. Rankin is thoroughly familiar with the work of the Cooperative Campaign and is well versed in the practices of the electrical industry. His work in the valley will be among the architects, home builders and contractor-dealers. His headquarters will be at Fresno and he will cover the territory from Bakersfield to Stockton. He took over his new duties on July 15.

Elwood Bachman, of the Salt Lake City office of the General Electric Company, recently addressed a meeting of the All-Engineers Club of that city on the subject of electric welding.

Fred Garrison, who has been connected in the engineering department of the Southern California Edison Company for the past five months has just recently joined the engineering department of the General Electric Company in the Los Angeles office as assistant to E. E. Valk. Mr. Garrison completed his education at the University of Nebraska and rounded out his training at the General Electric Company's Schenectady works prior to his connection with the Southern California Edison Company.

A. W. Trimble, assistant manager of the Apex-Rotarex Department of the Illinois Electric Company of Los Angeles is on a visit to the Apex factory at Cleveland, where a convention of Apex representatives is being held.

J. R. Deering, office manager. Los Angeles office, Westinghouse Electric & Manufacturing Company recently visited San Francisco and other northern points in California.

James R. Strong, president of the Association of Electragists International, and Laurence W. Davis, director, department of promotion and development of the same organization, were Salt Lake City visitors on the evening of July 18. These gentlemen were scheduled to speak at a meeting of the electrical people at the Chamber of Commerce that evening, but due to delay in arriving, their time did not permit. An informal reception was held, however, at the Hotel Utah, at which many representatives of the various branches of the electrical industry were present.

Harry Byrne of the North Coast Electric Company has returned to Seattle from a trip to New York and other eastern centers.

Henry Whitehouse, of the Washington Electric Supply Company, Spokane, is one of the moving spirits in the Spokane Radio Association. He is organizing several concerts and entertainments each week for radio station KFZ.

F. J. Kiefer, associated for a number of years with the Pacific Fire Extinguisher Company in charge of construction and later with Luthy Company of Haywards as factory superintendent has been employed as field representative for the California Electrical Cooperative Campaign. Mr. Kiefer will cover the territory from Santa Maria northward along the coast. He will work with the contractor-dealer, the architect and builder. His headquarters will be in San Francisco.

R. H. Keays, noted engineer of Alabon, N. Y., has been elected chief engineer in charge of the construction of the Moffat tunnel in Colorado. Mr. Keays has just completed the supervision of the construction of the Shandaken tunnel for the water supply of the city of New York.

J. H. Hilficker, proprietor of the Eureka Electric Company, Eureka, Cal., is a recent San Francisco visitor. For the benefit of the electrical devotees of Isaac Walton, Mr. Hilficker reports the fishing to be extremely good in the neighborhood of Eureka.

R. E. Fisher, vice-president in charge of sales of the Pacific Gas & Electric Company, has been made vice-president in charge of public relations and sales. Mr. Fisher entered the employ of the company thirteen years ago in the power sales department. Previous to that time he had had a wide experience in the electrical industry, having been on the sales staffs of both the Pacific States Electric Company and the General Electric Company. He had also been engaged in the electrical contracting business. In 1920 he was promoted to the position of commercial manager of the company and became vice-president in charge of sales in 1922. For the past year he has been chairman of the Advisory Board of the California Electrical Cooperative Campaign and as such has been largely instrumental



R. E. FISHER

in the success of that organization during the past few months. As a director of the California Development Association he has injected the story of California's electrical progress into the message which that organization is spreading throughout the country. He has been an active figure in the affairs of the Pacific Coast Electrical Association, the National Electric Light Association, and is a member of the Joint Committee for Business Development.

John R. Freeman, engineer of Providence, R. I., and former president of the American Society of Civil Engineers, is a recent San Francisco visitor. Mr. Freeman has been retained in a consulting capacity regarding the water supply of the city of San Diego.

Howard C. Means, chief engineer for the Utah state road commission, has been chosen president of the Western Association of State Highway Officials, embracing eleven western states. L. E. Laird, superintendent of the Wyoming department, was selected as vice-president. George W. Borden, state highway engineer of Nevada, was named secretary. Dr. L. I. Hewes of the United States bureau of public roads, William Weiser of the advisory board to the Colorado road department, and H. W. Gregory, director of the Idaho road department, were selected as additional members of the executive committee.

Ben Holtz, of San Francisco, representing W. N. Matthews & Bros. Company, pole line hardware, recently completed his annual business trip throughout the Puget Sound territory, spending a major portion of his time in Seattle and immediate vicinity.

F. F. McCammon represented the electrical industry of Denver on the Board of Directors of the Colorado Pageant of Progress recently staged in that city. Mr. McCammon is in charge of the power sales department of the Denver Gas & Electric Light Company and is serving his third term as a member of the advisory board of the Denver Electrical Cooperative League. For several years after his graduation from Colorado College as an electrical engineer he was connected with the Westinghouse Air Brake Company. Several years before the war he entered the engineering department of the Denver central station, leaving the company in 1917 to enlist in the navy. He was



F. F. McCAMMON

commissioned an ensign and spent most of his time in the service along the Pacific coast, and as a consequence is widely acquainted with western electrical men. Upon his return from the service he engaged in power sales work for the Denver company, later being promoted to the position he now holds. He had the honor of being the youngest member serving on the Pageant board, which was made up of leaders in Denver civic and commercial circles.

Norman S. Gallison has resigned as associate editor of the Journal of Electricity to enter the employ of J. E. French Company, northern California motor car dealers. Mr. Gallison joined the editorial staff of the publication in 1920 following his graduation from the University of California. Subsequently he resigned to become connected with the department of statistics and research of the Twelfth District Federal Reserve Bank. He rejoined the editorial staff of the publication in September, 1921.

John W. Patterson has resigned his position as field engineer for the Western States Gas & Electric Company and moved to Los Angeles. He will engage in building construction work there for a large glass company, which is now carrying on an extensive building program.

H. Birchard Taylor, president of the Pelton Water Wheel Company of San Francisco and also vice-president of Wm. Cramp & Sons Ship & Engine Building Company of Philadelphia, has come to San Francisco for his annual inspection trip of the Pelton Water Wheel Company's plant. He is accompanied by R. E. B. Sharp, assistant chief engineer of the I. P. Morris Division of Wm. Cramp & Sons.

Ross Hartley, head of the electrical jobbing house of Los Angeles known as the Electric Corporation, has announced the opening during July of two branch houses in the Northwest, one in Portland and the other in Seattle. Albert Rives, formerly connected with the North Coast Electric Company, is the new Portland manager.

H. L. Melvin, electrical engineer, the Washington Water Power Company, Spokane, has been in the East for the past three weeks. Mr. Melvin attended the convention of the A.I.E.E. at Swampscott, Mass., and since then has been visiting electrical manufacturing plants in the East.

C. S. Walters, for 13 years manager of the Pacific Power & Light Company in Walla Walla, Wash., has resigned to become vice-president and general manager of the Ashville (S.C.) Light, Power & Street Railway Company. Mr. Walters will leave for Ashville in about 30 days.

Rodney J. Bardwell, counsel and one of the directors of the Denver Gas & Electric Light Company, has been appointed a member of the hospitality committee to meet and entertain General Pershing when he visits Denver Aug. 15 on his tour of inspection of the citizens' military training camps, one of which is located at Fort Logan, Colo.

D. C. McClure, president of the Rocky Mountain division of the N.E.L.A., presided at a luncheon at the Denver Athletic Club, July 20, the object of which was to determine definitely the activities to be followed by the organization this year and to arrange for the annual convention at Glenwood Springs, Sept. 17-19. Officers and committee and section chairmen were his guests. It was reported that the program of speakers had nearly been completed by the committee of which E. A. Phinney is the head and that the entertainment features for the entire convention had been completed by B. C. J. Wheatlake and his associates. Plans are being made for the accommodation of 150 guests.

Carl Heilbron, recently elected president of the San Diego County Electrical Contractors' Association, has been an active agent for the betterment of the industry in California for many years. Mr. Heilbron organized and became the general manager of the Southern Electric Company, of San Diego, in 1904. Three years later he assumed the position of president of his company as well as its managership. Mr. Heilbron has been a member of the State Electrical Contractors' Association and was active in its organization in 1907-8. His firm has also been a member of the national



CARL HEILBRON

association for 17 years. Locally Mr. Heilbron has been active in numerous civic affairs of the city, being at one time the president of the San Diego Chamber of Commerce, and vice-president of the Panama California Exposition in San Diego. He is a member of the San Diego Electric Club and of the San Diego County Electrical Dealers' Association, besides a number of civic bodies. Being a speaker of considerable talent, Mr. Heilbron has assumed the leadership of many San Diego civic undertakings and has been prominent in the movement for the rendering permanent of the Exposition buildings being preserved in the city of San Diego in its Balboa Park.

Dr. Joseph F. Merrill, dean of the school of mines and engineering at the University of Utah, was the principal speaker at the Salt Lake All-Engineers weekly luncheon at the Commercial Club on July 16. He gave a report on a recent conference of the American Society for the Promotion of Engineering Education at Cornell University, at which a committee was appointed to recommend a better curriculum for engineers, to include industrial management and other subjects.

Stephen I. Miller, dean of the College of Business Administration at the University of Washington, Seattle, has been chosen from a list of twenty distinguished college executives, for the position of National Educational Director of the American Institute of Banking, and will leave the University on Oct. 1 to assume his new duties. Mr. Miller's selection came after the Executive Council of the American Institute had canvassed the country for more than a year in search of the right man for the place. Mr. Miller was formerly executive manager of the Northwest Electrical Service League.

Trade Outlook

San Francisco

A slight falling off in purchasing by consumers has been noted in the last few weeks but jobbers in dry goods, hardware and other staple lines report business as being good. It is evident that retailers are limiting their purchases to small amounts that they are in need of for present use. Collections are slow.

Building in the San Francisco Bay region continues active and a sufficient supply of labor is at hand to care for the needs. Building materials are at about the same level with lumber showing a slight decline. Real estate operators report that a large number of transfers are being made and that the sales for the first six months of the year were 30 per cent over the corresponding period of last year.

Shipping both in and out of San Francisco Bay reached a new high level in June. During that month there were 567 arrivals and 578 departures. The vessels arriving represented a total of 1,196,233 tons while for those departing the total was 1,252,312 tons.

San Francisco bank clearings for the two-week period ended July 19, amounted to \$334,500,000. For the same period in 1922 the total amounted to \$295,600,000.

Los Angeles

Forty-eight new business and industrial concerns opened their doors for business in Los Angeles in June, according to the industrial department of the Chamber of Commerce, while in the month of May there were forty-six. Seven of the June industries are furniture and cabinet while only one will be engaged in the manufacture of electrical goods.

Building continues at an unabated pace as is evidenced by the permits that were issued for the first half of the month of July; the total number being 2,322 with an estimated valuation of \$8,894,829.

Electrical manufacturers report exceedingly good business, and that they are able to obtain all that they can handle. This is particularly true of jobbers, especially as regards wiring devices and supplies. The sale of electrical appliances, both major household and the smaller ones, are very good, though this line of activity is not as good as the supply lines. With the advent of the present spell of warm weather the sale of electric fans is picking up. Radio sales are still going good and are considerably better than at this time last year.

Salt Lake City

A great deal of construction work is either under way, or about to begin, which means much to the progress and prosperity of Salt Lake City, the state of Utah, and in fact the entire inter-mountain section. Hundreds of men

are now at work erecting the new plant of the Columbia Steel Corporation. The building of the Moffat Tunnel, which will bring another railroad across the mountains from Denver to Salt Lake, is assured. Hydroelectric development is being increased, to keep ahead of the growing demands of industry.

Recent announcement by the Utah Copper Company that it has awarded a contract for the erection of nearly one hundred modern brick houses on its property at Garfield, Magna and Bingham, Utah, at an estimated cost of \$300,000, and also a large club-house at Bingham, would seem to indicate that that company has faith in the permanency of its operations in Utah.

Improved conditions are reported in the general retail business. Many new homes are being built, which is an important factor in the sale of electrical goods. Collections are reported as considerably improved. The general business situation is very favorable.

Portland

Preparations are being made at the freight terminals for handling the new fruit and grain crops, which will soon be pouring into the port for trans-shipment. Although some damage was done during July in certain areas by hail and rain, crops generally are in good condition and most of the principal commodities are well above the five-year average. Unfortunately for the farmer, the price of wheat is now very low, a fact which is expected to retard its movement. The fruit crop in the tributary country is unusually large with good prospects for profit. Foreign buying is already making itself felt.

The dry season has brought its worries for the lumberman. The logging camps are with difficulty keeping ahead of the mills and if fires should occur, these would be followed by a log shortage and higher prices. So far this season no serious fires have occurred.

Lumber mills are curtailing their output somewhat, as shown by the following figures for the week ended July 14: production was 2 per cent above normal, new business 11 per cent above production and shipments 6 per cent below new business.

The power companies report numerous sales of electric ranges.

Seattle

General business conditions throughout the Puget Sound district continue satisfactory. The demand for lumber has shown a slight slackening and the easing of lumber orders has given the mills of the state the first opportunity in months to build up stocks.

Construction has dropped off slightly, not in the number of permits, but in the work projected. Builders are inclined to hold back, in anticipation of price decreases, which conditions do not justify, according to local architects.

Early movement of empty freight cars westward from the eastern centers is depended upon to prevent serious car shortage in the Pacific Northwest this season, Department of Public Works officials state. At the October peak last season, an acute car shortage was experienced. With Washington in expectation of record crops for wheat and apples this year, the car problem becomes a serious one. Estimates on July 1 indicate that the Washington wheat crop will reach 59,382,000 bu., approximately 27,000,000 bu. more than in 1922, the report shows.

Electrical contractors and dealers report a very satisfactory volume of business during the month of July, taking into consideration that it is a vacation period. Collections are good.

Denver

New construction is decreasing, especially house and apartment building. Many extensive projects in these lines are under way but there are not the same number of new jobs being reported as was the case several months ago. For the first time since the war, a large number of apartments are available for rental while rents charged for private dwellings are being decreased in a number of cases.

Building material dealers feel that their goods are on a declining market while contractors and realtors say that the building peak has been passed. With hardly an appreciable increase in the cost of electrical work over that being done a year ago, it appears that competitive conditions between electrical contractors will become less severe and that better margins will be exacted on the work developing. Buying is extremely dull in nearly every line. This applies to electrical appliances especially.

Financial conditions throughout the region, however, seem to be sound. Recent statements of Denver banks showed a remarkably strong credit position with reserves ample to care for all the needs of the state during the crop moving season.

Spokane

Mining in the Coeur d'Alene district has been revived this spring, and most of the properties are under production. There has been increased activity in British Columbia.

The lumber industry is back to normal, with labor rather scarce. Three new plants have been added to Spokane's list of 20 woodworking establishments and two concerns have built large additions. With the large fruit crop in prospect, the manufacturers of boxes are working to capacity. The increase in house construction in the East is reflected in an increased demand for lumber and particularly for frames and sash, which are being shipped as far east as New York.

Bumper wheat crops are expected in the Palouse and Big Bend districts, but some concern is felt at the trend of the market. The apple crop of the Inland Empire promises to break all records. Plans for the construction of two oil refineries near Spokane have been announced by two companies. It is the intention to refine crude oil produced in the northern fields of Montana.

WASHING MACHINE DIRECTORY

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A list of washing machine manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of our knowledge it is correct at date of publication. When referring to this list in any way, mention the *Journal of Electricity*.

Key to Abbreviations
 O—oscillating type
 VC—vacuum cup type
 Cl—cylinder type
 D—dolly type

Im—impeller type
 DFM—Dayton Fan & Motor Co.
 Wx—Westinghouse
 GE—General Electric

RM—Robbins & Myers
 Em—Emerson
 Dom—Domestic
 Cen—Century
 L—Lovell

W—wood
 M—metal
 Sw—swinging
 St—stationary
 An—Anchor

Am—American
 C—copper
 TC—tinned copper
 Cz—copper, zinc lined
 GI—galvanized iron

Z—zinc
 VM—various models

MANUFACTURER	TRADE NAME	Operation	MOTOR		WRINGER		TUB			RETAIL PRICE		WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTOR	Nearest Point At Which Repair Parts May Be Obtained.
			Horse Power	Maker	Type	Length in Inches	Dimensions	Capacity (Sheets)	Material	Eastern	West of Rockies			
metal Mfg. Co., St. Louis, Mo.	"Almetal" "Pollyanna"	VC O	1/4 1/4	GE GE	W W	11 11	19x18 26x17	6 7	C C	\$135 \$120	\$145 \$130	.....	W. C. Baileys, 531 W. 8th St., Los Angeles	Distributor.
lorfer Bros. Co., Peoria, Ill.	"A. B. C."	Cl O	1/4	RM Wx	M or W	10	22x24	6	W or Z	\$135	\$145	W. E. Peters, 89 E. 12th St., Portland	A. A. Wilson, 612 S. Spring St., Los Angeles	Distributor.
ex Appliance Co., 3223 W. 30th St., Chicago, Ill.	"Apex"	O O	1/6 1/4	GE RM Wx	M M	11 12	..... .....	6-9 16	TC TC	..... .....	..... .....	A. M. Smith Co., Los Angeles	Dealers	Dealers
ex Elec. Mfg. Co., The 1067 E. 152nd St., Cleveland, Ohio	"Rotarex"	Cl	1/4	Own	M	12	17x18	8	G C	\$132.50 \$167.50	\$157.50 \$172.50	G. A. Buckley, 1405 Walnut St., Kansas City, Mo.	The Apex Elec. Distrib. Co., 681 Market St., San Francisco 1437 Welton St., Denver 2011 Broadway, Oakland 1024-11th St., Sacramento 2117 Inyo St., Fresno North Coast Electric Co., Portland, Seattle, Tacoma, Spokane	Distributors
utomatic Elec. Washer Co., Newton, Iowa	"Automatic"	D	1/4	Wx Em	W	12	.....	6	C	\$107	\$117	Inter Mountain Elec. Co., Salt Lake City and Direct Salesmen	Domestic Elec. Appl. Co., Seattle Inter Mountain Elec. Co., Salt Lake City and Direct Salesmen	Salt Lake City
arlow & Seelig Mfg. Co., Ripon, Wis.	"Big 3"	VC	1/6 and 1/4	Em	W	11 and 12	.....	4 to 8	C	VM \$90 to \$150	VM \$100 to \$165	Dohrman Commercial Co., San Francisco	Dohrman Commercial Co., San Francisco	Distributor
uckeye Prima Co., The Sidney, Ohio	"Prima"	O	1/4	GE	M	12	.....	8	W	\$160	.....	H. R. Christy, 322 Leary Bldg., Seattle	H. R. Christy, 322 Leary Bldg., Seattle	Distributor
icago Dryer Co., 2210-20 N. Crawford Ave., Chicago, Ill.	"Chicago"	O	1/4	Em	M	12 and 14	26x18 26x21 26x24	9 12 15	Cz	\$200 to \$375 VM	.....	.....	M. E. Hammond, Pacific Bldg., San Francisco S. W. R. Dally, Seattle Maritzen-Kuns Co., Los Angeles	Distributors
larinda Mfg. Co., Clarinda, Iowa	"Clarinda"	D	1/4	GE	W	10	22x22	6	W	\$80	\$90	Thos. T. Hoffmire, 178 W. 41st Place, Los Angeles	.....	.....
ark Cadle Harmon Corp., Rochester, N. Y.	"Harmony"	Cl	1/4	Wx	L	11	18½x19	8	W	.....	.....	Rawling & Smith, 604 Mission St., San Francisco	Dunham, Carrigan & Hayden Co., San Francisco	San Francisco
offield Washer Co., The Dayton, Ohio	"Coffield"	O	1/4	Sp	Sw	12	22x22	8	TC	\$155	\$160	E. P. Becker, 111 E. 3rd St., Los Angeles	Woodill-Hulse Elec. Co., 111 E. 3rd St., Los Angeles Honeyman Hardware, Portland Northwest Washer Co., Seattle	Distributors
ulton Corporation, 52nd Ave. and 19th St., Chicago, Ill.	"Incomparable Conlon"	Cl	1/4	GE	M	12	23x22	6	C GI	\$180 \$170	.....	Woodill-Hulse Elec. Co., Los Angeles	.....	Distributor
avis Sewing Mch. Co., The Dayton, Ohio	"Blue Bird"	O	1/6	GE Wx	Sw	11	16½x27	8	C	\$160	\$160	C. A. Eastman, 7303 Seward Park Ave., Seattle	Blue Bird Appliance Co., 1007-1st Ave., Seattle Alexander & Lavenson, San Francisco	San Francisco
awn Mfg. Co., The Bridgeport, Conn.	"Dawn"	VC	1/6	GE	Am	12	.....	6	.....	.....	\$79	Frederic A. Clarke 351 Oak St., Glendale, Cal.	.....	336 S. Broadway, Los Angeles
elco-Light Company, Dayton, Ohio	"Deico-Light"	O	1/6	DL	M	11	22x22	8	C	.....	\$145	.....	W. L. Cochran, Inc., 880 Mission St., San Francisco Ivan L. de Jongh, 129 E. 6th St., Los Angeles Modern Appliance Co., 508-1st Ave., South, Seattle	Distributors
ederal Electric Co., 8700 S. State St., Chicago, Ill.	"Federal"	O	1/4	Wx	L	....	32x27	6	C GI	\$175	\$175	Federal Electric Co., 91 New Montgomery St., San Francisco	Jobbers	Jobbing Points
oto-Burt Co., The Cleveland, Ohio	"Acrobell"	VC	1/4	GE RM	M	....	18½x24	8	C	\$165	\$175	.....	Commercial Associates, Los Angeles Barker Bros., Los Angeles	Los Angeles
oston Mfg. Co., St. Paul, Minn.	"Pal-O-Mine" "New Liberty"	O Cl	1/6 1/4	Wx Wx	St Sw	..... .....	..... .....	6 8	C W	\$125 \$145	..... .....	Pryser & Herman, 815 Union League Bldg., Los Angeles	Western Agencies, Inc., San Francisco	San Francisco
eneral Railway Signal Co., Rochester, N. Y.	"G-R-S"	Cl	1/4	Own	Sw	12	.....	8 to 18	C GI	\$140 to \$210	.....	.....	Mangrum & Otter Inc., 827 Mission St., San Francisco	Rochester, N. Y.
etz Power Washer Co., Morton, Ill.	"American Beauty"	O	1/4	Wx	M	11	.....	6 8	C C	\$125 \$155	\$135 \$165	Getz Washer Sales Co., 910 S. Grand Ave., Los Angeles	.....	Los Angeles
ysor Electric Co., 5008 Bloomingdale Ave., Chicago, Ill.	"Geysers"	Cl	1/4	Em Dom	L	11	.....	3 to 9	C GI	\$75 to \$175	\$35 to \$185	Ion Arnold, Westminster Hotel, Los Angeles	.....	Chicago, Ill.

NOTE—In compiling this series of Directories, the Journal of Electricity has made an effort to secure the desired information from all manufacturers of the types of equipment listed that is sold in the West. The Publisher will be glad to receive omissions, changes and additions for publication in the big FALL BUYING NUMBER of October 15, 1923.

WASHING MACHINE DIRECTORY

(CONTINUED)

Key to Abbreviations
 O—oscillating type
 VC—vacuum cup type
 Cl—cylinder type
 D—dolly type

Im—impeller type
 DFM—Dayton Fan & Motor Co.
 Wx—Westinghouse
 GE—General Electric

RM—Robbins & Myers
 Em—Emerson
 Dom—Domestic
 Cen—Century

L—Lovell
 W—wood
 M—metal
 Sw—swinging
 St—stationary

An—Anchor
 Am—American
 C—copper
 TC—tinned copper
 Cz—copper, zinc lined

GI—galvanized iron
 Z—zinc
 VM—various models

MANUFACTURER	TRADE NAME	Operation	Motor		WRINGER	Type	Length in Inches	Tub			RETAIL PRICE		WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTOR	Nearest Point At Which Repair Part May Be Obtained
			Horse Power	Maker				Dimensions	Capacity (Sheets)	Material	Eastern	West of Rockies			
Haag Bros. Co., Peoria, Ill.	"Haag"	D Cl O	1/4	GE RM Em	W	12	.....	6	W		\$86 to \$145		F. H. McGinnis, 906 "J" St., Sacramento	F. H. McGinnis, Sacramento, Cal. A. N. Smith Co., Los Angeles	Sacramento, Cal.
Horton Mfg. Co., Fort Wayne, Ind.	"Horton"	VC D	1/4 1/6	GE GE	M	12	18x25	5	C		\$160			Baker Hamilton & Pacific Co., San Francisco A. A. Wilson, Los Angeles Schwabacher Hdw Co., Seattle Hexter & Co., Portland Salt Lake Hdw Co., Salt Lake City Holly Mason Hdw Co., Spokane Tritch Hardware Co., Denver	
Hurley Machine Co., 22nd St. & 54th Ave., Chicago, Ill.	"Hurley Thor"	CL	1/6 1/4	GE Wx	M	11 12	.....	6 to 12	C or GI or W		\$125 to \$275	\$135 to \$280	Hurley Machine Co. J. W. Ferry, 425 Rialto Bldg., San Francisco	Pacific States Electric Co., San Francisco, Los Angeles, Oakland, Portland, Seattle, and Spokane	All branches of distributor
	"Hurley Superior"	O D	1/6 1/4	GE Wx	M or W	11 12	.....	6	C or GI or W		\$84 to \$145	\$145 to \$155			
Johnson Elec. Washer Co., 40th & Adeline Sts., Oakland, Cal.	"Johnson" "Common Sense"	Im VC	1/4 1/6	Wx Wx	Sw Sw	11 11	16x22 12½x22	6 6	C C		..... \$100 to \$140		Johnson Elec. Washer Co., 40th & Adeline Sts., Oakland, Cal.	Same	Factory
Landers Frary & Clark, New Britain, Conn.	"Universal"	Cl	1/4	RM Wx	W	12	.....	6	GI C		..... \$150 to \$165		C. K. E. Watson, Call Bldg., San Francisco	Electric Appliance Co., San Francisco, Los Angeles Baker Hamilton & Pacific Co., San Francisco	San Francisco and Los Angeles
Maytag Co., The Newton, Iowa	"Maytag"	Cl	1/4	GE	Sw	12	22x22	6	A		\$150	\$160	Chas. H. Long, 315 Belmont, Portland	Schluster's, Los Angeles, San Francisco Holly-Mason Hdw Co., Spokane The Salt Lake Hdw Co., Salt Lake City Sloat Wholesale Co., Portland Southern Electrical Co., San Diego Stewart Wholesale Co., Boise, Idaho West Coast Sales Co., Oakland	Representative or Distributors
Meadows Mfg. Co., Bloomington, Ill.	"Meadow Lark"	Cl	1/4	.....	M	11	18x20	6	GI C		\$135 \$155 \$150	\$145 \$165 \$160	L. A. Robinson, 854 S. Hill St., Los Angeles	Manufacturers Representatives Co., 74 New Montgomery St., San Francisco	San Francisco
	"Greyhound"	O	1/4	.....	M	11	18x28	8	C						
Michigan Washing Mch. Co., Muskegon, Mich.	"Michigan Electric"	D	1/4	GE	W	10	.....	6	W		\$85	\$85		Heyman Weil Co., San Francisco	San Francisco and Los Angeles
	"Electric Lady"	O	1/4	GE	W	12	.....	12	C		\$150	\$150		Union Hdw. & Metal Co., Los Angeles	
Modern Laundry Mch. Co., Kansas City, Mo.	"Mola"	Cl	1/4	.....	W	12	.....	.....	.....		\$130	\$135	Geo. E. Prine, care of A. A. Wilson, 606 S. Spring St., Los Angeles	A. A. Wilson, 606 S. Spring St., Los Angeles	Los Angeles
New Era Elec. Corp., Hoboken Terminal "D," Hoboken, N. J.	"Modern Home Washer"	Cl	1/8	GE	An	12	19½x19½	6	GI		\$119	\$127.50	H. R. Basford Co., San Francisco		San Francisco
One Minute Mfg. Co., Newton, Iowa	"One Minute"	Cl D	1/3 1/4	Dom Dom	Sw Sw	12 12	.....	6 6	C W		\$145 \$99	\$152 \$106.50	A. J. Ratelle, 619 Pine St., Seattle	Dohrman Commercial Co., Parmelee-Dohrman Co., Los Angeles	San Francisco
	"Daylight"	VC	.....	Em	W M	12 12	.....	.....	C W		\$155	\$165	Puffer-Hubbard Mfg. Co., 207 Railway Exchange, Portland		
Puffer-Hubbard Mfg. Co., 2001-32nd Ave. S., Minneapolis, Minn.															
Sunbeam Elec. Mfg. Co., Evansville, Ind.	"Sunbeam"	O	1/6	Wx	M	12	19x23	8 6 18	C		\$155 \$129.50 \$215	\$162.50	F. M. Hills, 516 Bancroft Blvd., San Diego		San Francisco
Sunny Line Appliances, Inc., 4058 Beaufait Ave., Detroit, Mich.	"Sunnysuds"	O	1/4	Dom	M	12	.....	.....	C		\$125	\$135		Commercial Associates, Inc., 754 N. Spring St., Los Angeles Poole Elec. Co., 1206-4th Ave., Seattle	
Syracuse Washing Mch. Corp., Syracuse, N. Y.	"Easy Vacuum Elec. Washer"	VC	1/6	GE RM	M	12	.....	8	C GI		\$155	\$165	J. Lee Richards, Syracuse Washing Mch. Sales Co., 180 New Montgomery St., San Francisco		San Francisco
The "1900" Washer Co., Binghamton, N. Y.	"Cataraction"	O	1/4	RM	Sw	.....	.....	8	.....		\$155	\$165	W. Lee Holmes, 71 New Montgomery St., San Francisco		
Western Electric Co., New York City	"Western Electric"	Cl	1/6	Own	Sw	11½	22x23	6	GI TC		\$145 \$165	\$155 \$175	Western Electric Co., San Francisco, Los Angeles, Oakland, Seattle, Tacoma, Portland, Spokane, Denver, Salt Lake City	Western Electric Co., San Francisco, Los Angeles, Oakland, Seattle, Tacoma, Portland, Spokane, Denver, Salt Lake City	All Branch Offices
White Lily Mfg. Co., Davenport, Iowa	"White Lily DeLuxe"	Cl	1/4	GE	.....	.....	.....	6	GI ( )		.....	.....	H. J. Valentine, 488 N. Cypress, Burbank, Cal.		Factory
H. E. Williamson Co., 22 Grace St., San Francisco	"California Maid"	Cl	1/6	Cen	Sw	11	18x26	8	GI		.....	\$125	H. E. Williamson Co., San Francisco		San Francisco
Woodrow Mfg. Co., Newton, Iowa	"Woodrow"	D	1/6	Em	Sw	12	6	W		\$102	\$110		W. E. Dooley & Co., 804 Pine St., Seattle A. A. Wilson, 712 S. Spring St., Los Angeles	Distributors

Journal of Electricity

5 Cents a Copy

August 15, 1923

San Francisco



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Hearth Furnaces for --*

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for Every Electrical Purpose"*



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Iron Wires
Rigid Iron Conduit and Fittings
Flexible Metallic and Non-metallic
Conduit and Armored Conductors
Switches, Switchboards and Fuses
Insulating
Materials

Journal of Electricity

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SAN FRANCISCO, AUGUST 15, 1923

NUMBER 4

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New Directory Service

THE attention of our readers is called to a series of directories of electrical merchandise appearing serially in the Journal of Electricity.

On page 139 of this issue appears the third of this series—"A Directory of Electric Ironing Machines." The complete series includes the following directories:

July 15—Electric Vacuum Cleaners

Aug. 1— " Washing Machines

Aug. 15— " Ironing Machines

Sept. 1— " Radiators & Heaters

Sept. 15— " Ranges

Oct. 1 { " Dish Washing Machines

Oct. 1 { " Sewing Machines

Oct. 15—Reprint of 6 Directories in Pamphlet Form

The primary purpose of these Directories is to give the western buyers of electrical merchandise specific and accurate catalog data, prices, and more important still, the name and location of the individual or firm here in the West from whom the particular product, or information regarding it, may be readily and quickly secured.

This service, while primarily for our readers, we believe is of equal importance and value to the manufacturers whose lines are listed and also their agents and distributors. These directories are also a corollary to our cross-indexed list of Manufacturers and their Western Representatives published annually (in the Oct. 15 issue), a service which has been much appreciated in the past.

This additional service is just one of the several recent improvements we have made to make this Journal of greater value to a larger number of readers.

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Coal Age

Electrical Merchandising

Power

“Single Wall Loom is Best”

Contractors have said it; jobbers have said it; we have said it; and now other manufacturers admit it by making this type.

When we started making non-metallic conduit, there were no Single Wall types. We originated the Single Wall construction.

We have never made any other type than Single Wall. We have spent our efforts on that type and have gone through the experimental stages, so that today we are experts in making a loom of this construction.

Since Contractors, Jobbers and Manufacturers agree that the Single Wall type is the best, you can do no better than use the original.

That means

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of course!

Tubular Woven Fabric Company

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Pacific Coast Representatives

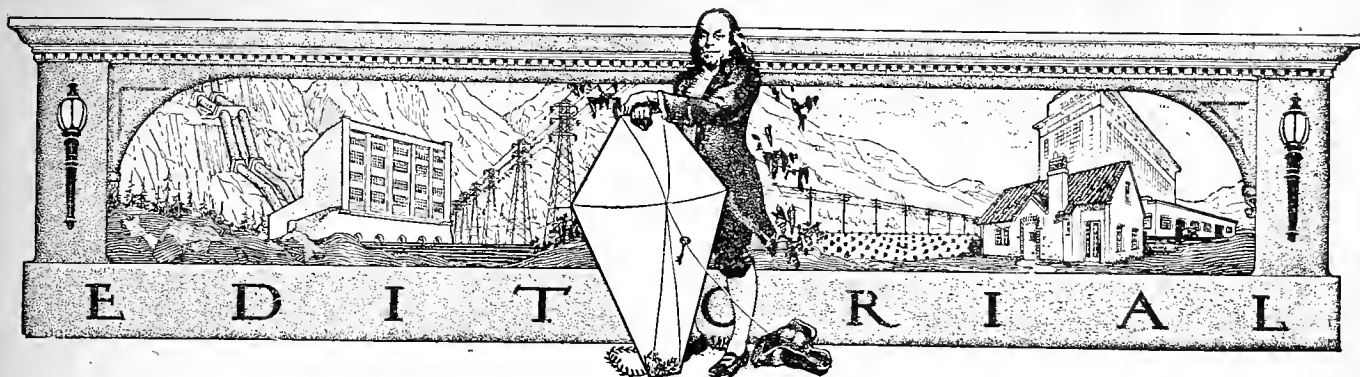
Allied Industries, Inc.

San Francisco
455 Second St.

Seattle
1252 First Ave. So.

Los Angeles
340 Azusa St.

Portland, Ore.
781 Commercial St.



Dam the Colorado!

WHEN the movie hero swings outward over space with nothing between him and three thousand feet below but one suspender button, the audience gasps and prays for a quick release and for the button—even, be it said, that the man may prove to be that type of pessimist who wears both suspenders and a belt. We are in somewhat the same position in regard to the Colorado River situation. Arizona has held up the interstate pact, delaying for at least two years the construction of any dam on the Colorado and leaving the lower region of the Southwest crippled in its rightful development and open to a continuous danger of flood during the high water season. We can only ask Providence for a dry season and for an early remedy for the deadlock.

ON another page of this issue appears an article by the Governor of Nevada, outlining the practical aspects of the situation and suggesting his idea of a possible solution. In brief, Arizona objects to the pact because it feels that the river's water power is its greatest natural resource and that it should have the benefit from its development.

WE cannot but have some sympathy for Arizona's attitude—and yet what is to be done about it? Let the three lower river states handle the irrigation and power development jointly, says Mr. Scrugham. All right, if that can be properly safeguarded. But before anything of the sort can be done, the international problem with Mexico must be settled. Further, an agreement must be reached between the upper and lower states which will settle the question of apportionment of water between these districts. Then it must be decided as to just what portion of the water Arizona, Nevada and California respectively are to be allowed to use and, in order to insure the proper manipulation of the reservoir gates and the control of

flood waters to the best interest of all concerned, the regulation of the reservoir should remain subject to United States control.

AFTER all this is done, it is not quite apparent just what advantage the suggested arrangement will have over that already rejected by Arizona. Moreover, this "Carrying out the will of the people" idea has its difficulties when it is necessary to settle upon a permanent policy for consistent development.

CERTAINLY something must be done. It is not possible to suppose that suspender buttons and flood years will hold on (or hold off, as the case may be) indefinitely. Let us set about the matter in an orderly fashion. The international aspects of the question can only be settled by the federal government. Why not now? There has already been too much delay and too much haphazard development allowed, the rights of which may have to be recognized. If the principles of division and future use of the water must be determined before the details of actual development are considered, should we not set about attacking the problem from this new angle?

WHEN it comes to the actual construction of the dam and the distribution of water and power, we are frank to state that we think it could be handled most expeditiously and most economically by private enterprise under strict government regulation. The situation is a practical one, however—and the question is not what is the ideal solution, but rather, what will Arizona accept. We believe the matter should be settled and provided proper safeguards are imposed, and with due warning of the dangers of any development under state control, we are willing to let the means for carrying it out be determined by the exigencies of the present facts. Only let us go forward.

Margin of Profit May Wreck Any Business

SEVERAL men were discussing the problem of distribution of electrical appliances recently. Each had different ideas on the subject. One suggested that the central station was the logical outlet for merchandising these products. Another declared in favor of a strictly electrical retailer entirely divorced from the contracting business. A third was strong in his conviction that the so-called non-electrical outlets would ultimately corner the business. Now the fourth may or may not have been wiser than his fellows, but he advanced the theory that the biggest problem in the question of distribution is not central station merchandising nor the ratio of contracting business to appliance sales in the case of the contractor-dealer, nor is it the non-electrical outlet. He believed that the root of the evil lay in the margin of profit on electrical goods.

We agree with his statement. The contractor-dealer has been accused of being a poor merchant and specific cases have been cited to prove this contention. How could the poor chap (devil?) be otherwise? Operating on discounts ranging from 25 to 40 per cent on his merchandise, he has been hard put to pay his rent, to say nothing of advertise, dress up his store front and elaborately decorate his windows. Those who have been successful have been super-merchants.

Before we are accused of exaggerating, it might be well to cite some figures. At the recent convention of the National Electric Light Association, the statement was made that a check of the first three months' merchandising business of 1923 of eleven central stations, amounting to \$2,000,000, showed a net loss of 12 per cent. Staggering, isn't it, when one considers the facilities which these organizations possessed to properly conduct their merchandising department? It is sufficient proof of the fact that there is more than a grain of truth in the statement that the margin of profit on electrical goods is too small.

No one branch of the industry can solve this problem. A remedy must be found at once. Rather than question the efficacy of the contractor-dealer as the proper outlet for electrical appliances, let all branches join together in a study of this vital problem. Otherwise there will be more bankrupt contractor-dealers and the eleven central stations mentioned above may meet the same fate if they continue to lose a quarter of a million dollars every three months.

Selecting an Expert Because He Is Not One

WITH San Francisco discussing the possible retail sale of power from its Hetch Hetchy project and with Colorado Springs, Sacramento and other cities of the West discussing municipal power plans, it is becoming an imperative matter for the public to acquire an intelligent basis for judgment. Which calls attention to one of the intrinsic weaknesses of the situation—an explanation, possibly, for many of the mistakes made in the past in the name of muni-

cipal ownership. This is the difficulty of persuading one side to an argument to make use of expert advice on a subject on which all of the experts are on the other side of the question.

When a private company undertakes anything so important as going into the light and power business, it employs the very best advice available and studies the matter from its engineering feasibility, its costs and its possibilities of return. The city sets out to follow the same course. But it is afraid of any man who is employed by a power company or who ever was connected or even acquainted with a power company. And so, by the very nature of the case, it seeks out an "expert" who has had no first hand knowledge of power development—irrigation engineers, railroad men, bridge builders—even, sometimes, lawyers, orators and politicians. We have no wish to disparage the engineering qualifications of these gentlemen when they have such—but the fact remains that they may and sometimes do overlook entirely some very important phase of the subject. And the cities vote to undertake a responsibility which, under proper expert advice, they would have realized presented grave dangers. Why be so afraid of the man who knows something of the subject? The fact that electrical engineers and power experts are almost unanimous in their opposition to these projects has a significance which is not to be discounted by any cry of "partisan." It is a warning based upon experience and knowledge—and one which the public will do well to heed.

Municipal Broadcasting as a Western Solution

NO part of the country is without the reach of some sort of broadcasted program. On the eastern seaboard, there are so many excellent stations sending at all hours that there remains no particular problem of broadcasting from the standpoint of the dealer who would sell radio equipment. But the West is more sparsely settled. The larger centers, to be sure, have excellent stations managed by department stores, newspapers and banks, but there are still districts where no satisfactory local service is available and where good radio programs can be picked up only by those possessing the larger sets.

Now radio fans are made and not born. Most of the more expensive equipment is sold to customers who started with a home made outfit or a ten dollar "bargain" receiver and who gradually became interested enough to want a wider range. Where the smaller sets can pick up nothing better than phonograph music locally broadcasted there is not much prospect of building up this business and the market suffers in consequence. The broadcasting problem from its western angle is still only partially solved.

Who is to answer it? J. J. Agutter in this issue takes a glance into the future and looks to municipally operated broadcasting stations to meet the need. The broadcasting station as an advertising adjunct to a totally unrelated business he regards as carrying with it its own limitations. Certainly

its future is dependent upon other factors than the best interests, either of the listener-in or, what is tied in with that, of the seller of radio equipment. Some of the western districts have already had experience with broadcasting stations which have proved a greater expense to their owners than the advertising results were worth and so have been given up, wrecking a market already partly developed.

We have municipal organs and municipal bands and municipal opera. Why not a municipal radio program?

An Opportunity to Do a Worthy Deed

FOR months past it has been the practice of the circulation department of the Journal of Electricity to send to the California State Prison at San Quentin copies of that publication. These have been placed in the library or have been used in classes. Recently a letter was received from the secretary of the religious and educational department of the institution asking if it would not be possible to send more such material. To quote from the letter:

"We have one class in electricity and automobile ignition of about seventy-five students and also three classes in electricity provided by the Extension Division of the University of California. It is no small problem to provide good literature and semi-technical works for the large number of students enrolled in these courses."

While the Journal of Electricity sends all available material, it feels that here is an opportunity for some of its subscribers to do a worthy deed. If you have available any text-books of an engineering nature that no longer meet your needs or if you have copies of recent technical journals, we ask that you send them to our San Francisco office so that they might be forwarded to the prison.

San Quentin Prison has the reputation of being one of the most progressive penal institutions in the country for the rehabilitation of its inmates. We are glad of the opportunity to assist in this work and feel sure that our readers will take a similar stand.

A New Selling Argument for Better Electrical Installations

TO be able to say to a prospective customer that the use of a certain device or the installation of certain equipment will materially reduce insurance rates has proved a very effective sales argument. Witness the numerous installations of automatic sprinkler systems or the phenomenal sale of certain appliances for automobiles. To date the electrical industry has not been able to capitalize on this selling argument, perhaps because a very self-evident method of so doing has been overlooked.

Certain standards for electrical equipment and installations have been set up by the fire underwriters in the form of the National Electrical Code. Now this code represents the minimum requirements which must be met before a job will be accepted as

a risk by the insurance company. The practice in the past has been to keep as close as possible to these minimum requirements. To say that a job which complies with the code is "good" practice is far from the truth. It is as close to "bad" practice as the contractor dare go and still have the job accepted by the inspectors.

There should be some reward for the installation that is better than the minimum defined by the code. If the contractor can prove that such an installation is safer than one whose standard is lower, then the insurance companies should be willing and glad to allow lower insurance rates on the building in which it is made. If such an allowance was made, the contractor would possess a strong selling argument for higher grade installations.

Steps toward this end have been taken by the Association of Electragists International and the preliminary overtures to the insurance companies have been favorably received. Further conferences will be held in the near future to determine whether or not such a scheme is practical. The association is to be congratulated for this forward step and the outcome of the conferences will be awaited with a great deal of interest by the entire electrical industry.

Get Them Into Your Store

HOW many women of your acquaintance make out a shopping list before they go down to make their Christmas purchases—and then stick to the list? "Why should I?" asks the woman, "I can't know ahead of time what there is to be bought in the stores. Something new is brought out every year. I believe in shopping." This attitude on the part of women shoppers does not discredit the worth of advertising (you will find that many women read the paper almost entirely to get the news of the shops) but it does bring out the importance of bringing the woman into your store and letting her look about for herself. It would hardly be exaggerating to say that fully half of the sales made by the department store are made without deliberate forethought on the part of the purchaser. She saw something she liked at a reasonable price and she bought it.

Has the electric shop any corresponding type of trade? How often does the customer enter the store of the contractor-dealer? She has a list of perhaps five appliances which some day she hopes to own and as she acquires the money; one by one at long intervals, she makes these purchases. In between times she buys her lamps or possibly takes in an iron cord to be mended. She has no idea, unless some means is devised for conveying the information to her, what other electrical equipment is made in which she might be interested, nor how inexpensive and alluring electric curling irons or toasters or heating pads have become since the last drop in price. The answer is that the woman must be brought into your store. A weekly bargain, a sideline which brings a "repeat" business, a rest room, a public telephone—there have been many different methods devised for attracting the customer to your doors.

CURRENT COMMENT



Agitation has been started in San Francisco to have that city follow the example of Seattle and Los Angeles and enter the electric power business. With

San Francisco Would Enter Power Business

a 70,000-kw. hydroelectric plant nearing completion in the Sierra as an adjunct to the Hetch-Hetchy water supply system, the question of the disposal of this block of power has assumed major importance, with sundry factions suggesting many weird schemes for the utilization of this energy. Labor, the various civic organizations and many self-appointed advisors have rushed forward with proposals to the Board of Supervisors.

The situation at the present time stands as follows: The Public Utility Committee of the Board of Supervisors has advised that body to distribute the power as a municipal enterprise, but with one saving recommendation. Before any action is taken, the committee suggests that a careful study of the situation be made, that proposals be received from the two power companies for the purchase of the power wholesale, that estimates be made of the cost of construction of a complete distribution system and that prices be asked of the Great Western Power Company and the Pacific Gas & Electric Company for the purchase of the existing systems of those two utilities. No action will be taken until these various steps have been completed.

City Engineer M. M. O'Shaughnessy has on several occasions recommended that the city dispose of the power at wholesale rates. His department is charged with making the present study and submitting a report to the Supervisors. Should San Francisco enter the municipal power business the city will be in much the same situation as Los Angeles, for the capacity of the Moccasin Creek plant is limited to 70,000 kw. while the present load of the city is at least 110,000 kw. The additional power to serve this load would certainly have to be purchased from the existing central stations. At the present time Los Angeles is purchasing at least one-third of its power from the Southern California Edison Company.

The San Francisco Electrical Development League, after a careful study of the situation, by a competent committee, has passed the following resolution, which has been submitted to the Board of Supervisors:

Whereas, The San Francisco Electrical Development League, an organization having for its purpose the advancement of San Francisco and the State of California in things electrical, to the end that our citizens may have the best that

is available, due to the advancement of science, and in particular to its electrical applications, and

Whereas, The proposal to extend the Hetch Hetchy power development project so as to include entering into the electrical distribution business in San Francisco has been brought to the League's attention, and

Whereas, The League having the best interests of the people of San Francisco at heart, has had a careful study made of the situation, and particularly of the additional responsibility which would be assumed in excess of those demanded by the power development of the Hetch Hetchy water-works scheme;

Now therefore, **Be it Resolved**, That the San Francisco Electrical Development League, after carefully considering the proposed electrical distribution idea for the City of San Francisco, hereby formally disapproves of this scheme, insofar as it goes beyond the recommendation of the City Engineer, for the sale of the Hetch Hetchy power at wholesale, for the following reasons:

- (1) It would have a serious retarding influence on the city's development.
- (2) The city is in no position to properly finance a distribution system, because of the enormous demands for money for other vital purposes, and the unsatisfactory condition of its finances.
- (3) It is proposed to divert money voted and dedicated to water works purposes into the electrical distribution scheme.
- (4) The city's existing municipal ownership venture's pressing necessities for additional capital should be first satisfied.
- (5) Good business judgment dictates that a byproduct should be treated and disposed of at wholesale, if possible, with the least interference possible to the main object of any concern, which in the case of a city corporation is the the opportunities afforded its citizens for "life, liberty and the pursuit of happiness."

First preliminary rumblings of a campaign for state wide public ownership of the power industry in Washington were heard at a recent meeting in Seattle

State Ownership Specter Rises in Washington

of what is known as the "Public Ownership League of Seattle." Plans were definitely announced at that time for bringing such a proposition before the voters this fall and committees were appointed to carry out the campaign. Oliver T. Erickson, Seattle councilman, was chosen president.

The scheme is frankly based on the "Water and Power" bill which formed a major issue of the California elections last fall and seeks to bring about state wide control of water power development and eventual state ownership of the entire power industry. The fact that the constitution of Washington limits the bonded indebtedness of that state to \$400,000 which, as they admit, would not "erect a substation," does not seem to bother them, although just exactly how they propose to guarantee payment on bonds on a project of doubtful business success without implicating the state treasury is not clear.

The California act provided for the payment of interest and principal, if necessary, out of general state funds.

Of course, the city of Seattle has undoubtedly gone somewhat deeper into its municipal power project than it foresaw when it started—it may even be that it would be glad to unload some of its troubles upon state shoulders. But that is an explanation and not an argument in favor of the movement.

California has just gone through a most expensive campaign to convince itself that it does not want to go into the power business—expensive because any campaign must be expensive which necessitates the wholesale education of the people upon such a technical subject. California voted two to one against state ownership. It is to be regretted that Washington is to be forced so soon to go through the ordeal of learning the same lesson. The outcome must be the same—it is to be hoped that a sufficient number of people will realize this fact in time to prevent the movement ever getting beyond its initial stages.

That activity in development of the water resources of California is still proceeding at a rapid pace is evidenced by the large number of applications to appropriate water which have

Water Resources Being Developed at Rapid Rate been received by the Division of Water Rights, State Department of Public Works, during the fiscal year which closed June 30, 1923.

All appropriative water rights in California are now initiated through application to the division, and the number being received is a very good index to the rate at which new hydroelectric power, irrigation, mining and water supply developments are being proposed.

During this fiscal year 580 applications for permit were made to the division, a greater number than ever received in a like period since the creation of the office. These applications contemplate the use of 106,000 cu. ft. of water per second, and the storage of 35,800,000 acre-ft., at a total estimated cost approximating \$125,000,000. Under them it is proposed to irrigate 4,600,000 acres and develop 3,000,000 theoretical horsepower, in addition to use by a number of mining and municipal water supply projects.

Up to July 1, 1922, a year ago, there had been received by the Division of Water Rights a total of 2,923 applications, of which 979, or 3 per cent, were still awaiting approval or rejection. Those received during the past year brought the total number received up to 3,499. In spite of the large number of applications coming in, the number awaiting action has been reduced to 870, or 25 per cent of those received to date.

Up to a year ago the number of applications awaiting action had steadily increased, the largest number of actions during any fiscal year having been 376, during 1921-22. The number acted upon last year, 689, showed an increase of 83 per cent over this figure. Work in disposing of these pending

applications has been speeded up by the division during the past six months in contemplation of a reduction of its personnel during the coming biennium.

The chief of the Nagasaki Prefectural Marine Products Bureau, Nagasaki, Japan, together with a committee of men interested in marine products, is reported to be investigating the possibilities of installing wireless telephone outfits in the larger-sized fishing boats which have their base at Nagasaki, to enable them to communicate with shore when in difficulties, and to report the catch in time for their owners to realize on it. Reports to the Department of Commerce from Consul Hitchcock state that the recent success of the Fukuoka-Fusan wireless telephone tests has been the immediate cause of this interest in more practical applications of wireless telephony.

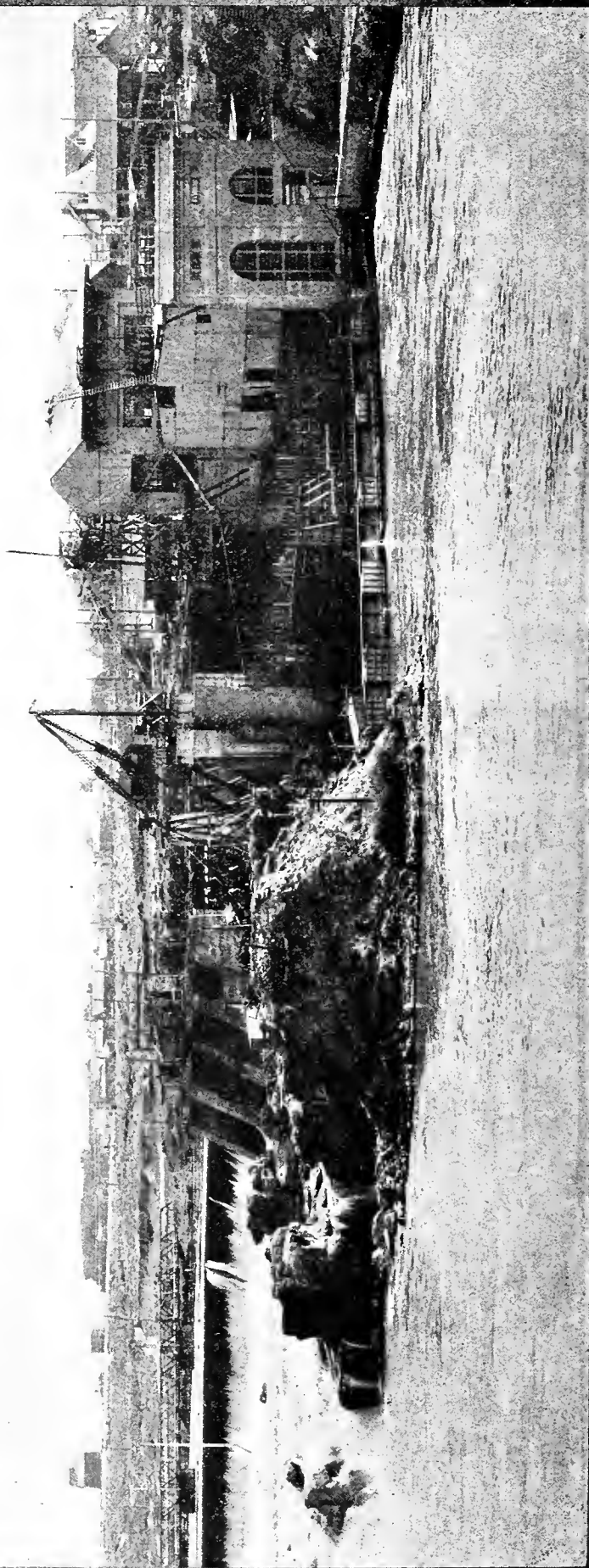
There are about 150 fishing boats on which wireless telephone equipment might be installed, and though they frequently go to distances from shore too great for direct communication, it is believed that a system of relays could be developed by which messages could be sent through the land. While wireless sets of Japanese manufacture will doubtless be favored where suitable equipment can be obtained locally, Consul Hitchcock believes that the owners of some of the larger boats ought to be interested in American-made sets.

A remarkable increase throughout the United States in efficiency in the use of fuel and the production of electricity during the past four years is seen in a statement just issued by the Department of the Interior, through the Geological Survey. The statement indicates that electric public-utility power

Efficiency of Utility Plants Is Increasing plants produced more electricity in 1922 than ever before, and that over one-third of the total amount produced was generated at water-power plants, thereby conserving over 20,000,000 tons of coal in 1922. New York is the leading state in the production of electricity by public utility power plants and California is the leading state in the production of electricity by the use of water power. One-fifth of the total amount of electricity produced by water power in the United States is produced by California hydroelectric power plants.

Reports on the monthly production of electricity and consumption of fuel by electric public utility power plants in the United States are now being published by the Geological Survey. These reports were started in 1919, covering the months of February, March, April, July, September and October in that year, and have been published each month, beginning with January, 1920. They show the output of central stations, municipal plants, plants generating electricity for the operation of street railways and electrified steam railroads, and the portion of the output of a few manufacturing plants that is sold for public use.

ONE of the important construction projects now under way in the West is the outdoor type generating plant being installed by the Idaho Power Company as an addition to its American Falls Plant on the Snake River. Two 7,500-kva. units operating under a 55-ft. head will increase the capacity of the station to 10,000 kw. The work will cost \$1,200,000 and will be completed in November.



Has Arizona Stopped the Colorado Development?

By Jas. G. Scrugham
Governor of Nevada*

THE electrical power industry on the Pacific Coast generates some six hundred billions of kilowatt-hours of electricity per year. It has a million consumers, or more. The capital investment is at least half a billion dollars. These figures are all very imposing. The electrical industry has done much for the development and the prosperity of the West. Scattered all over intermountain and coast cities we have our numerous small plants, turning the wheels of industry, and supplemented by the power projects which have been installed on nearly every stream system of the West. But the greatest of all these stream systems—the Colorado—lies untouched.

We have in it the third greatest stream system of the American continent, exceeded alone by the Mississippi and the Columbia Rivers, annually discharging to the sea approximately seventeen million acre-feet of water. This water drops on an average nearly eight thousand feet from the snow-capped Uinta mountains of Wyoming to California—and it is not used. The St. Lawrence River, of approximately similar length, only drops six hundred feet, instead of eight thousand. The Tennessee River (with the famous Muscle Shoals project) only drops some three hundred feet, with a much smaller discharge of water.

A Menace Instead of an Asset

What is the matter? Why is the West in the mountain states and the Pacific Coast states not taking advantage of this tremendous industrial asset with which nature has endowed us? The answer is very simple. It is lack of cooperation, lack of agency or medium through which an understanding can be obtained. To some extent, too, it is due to a confusion of water laws in the various western states.

Instead of being the servant of the people, this river system is the master, with an ever present menace of inundation of thousands and tens of thousands of acres of the most fertile land in Arizona, and with the possibility of a great tragedy overhanging daily and hourly a very considerable portion of the Southwest.

THERE is no desire in Arizona on the part of anyone to delay the development of the Colorado River. Our mining industries need power. Yuma needs flood control and several of the prospective agricultural valleys need power for pumping. Consequently we are in need of early development. The states of Nevada and Arizona are both suffering from the same thing. The federal government owns too much of our territory. Here in our state they have reserved mineral rights and nearly all of our timber, all of our coal and water power sites, and have kept up the fiction that the Colorado River is a navigable stream. Coconino County in this state is the second largest county in the United States and the federal government owns nearly 90 per cent of it. It is going to be necessary, if we are to have a state down here instead of a number of boroughs for different cities throughout the country and different corporations to exploit, that the resources put here by nature capable of sustaining the populations, be used to secure those advantages.

—A prominent Arizona official.

Water control is a prime necessity. Who is going to do it? The nation is agreed that no one is going to put money in this, or any other project, unless there is a reasonable assurance of a fair and adequate return. The very magnitude of the problem, and the bickering and the jealousies of the various states add difficulties to its solution.

Three years ago Senator Pittman of Nevada introduced in the Congress of the United States a bill which would permit the interested states of the river basin to join together and form a compact as to a fair and equitable division of the water,—the Supreme Court of the United States having previously decided in cases, which I will not take the trouble to repeat,

that each state was entitled to its fair and equitable share. Owing to the fact that this bill was introduced in the closing days of the Wilson administration, it was impossible to obtain action thereon; but with the incoming administration, Mondell, then the Republican floor leader, introduced what is called the "Colorado Pact Bill," which was promptly passed by Congress.

The seven interested states, California, Nevada, Wyoming, Utah, Colorado, Arizona and New Mexico, thereupon passed enabling acts. It was my pleasure to be a member of the first pact commission. We met in the city of Washington something over a year ago, under Herbert Hoover, Secretary of Commerce, who was appointed as a member to represent the federal government. It immediately became obvious that it was almost impossible to divide the waters of the Colorado or any other stream system between the states, for the reason that each and every representative felt it incumbent upon himself to claim everything in sight; and by the time the sworn claims of each of the states were summed up they amounted to something like four times as much water as ever had been in the river or ever would be. That is characteristic of our western brethren.

The Present Situation

A compromise immediately suggested itself. Geographically, the Colorado River system is divided into three grand divisions, two of which are in the

*Extracts from an address before the Pacific Coast Electrical Association.

United States. One of these consists of Colorado, Utah, Wyoming and New Mexico; the second grand division consists of Nevada, Arizona and California. The upper division furnishes eighty-seven per cent of the water; the lower division (within the United States) furnishes the remainder, thirteen per cent. However, the opportunities for improved development are far greater in the lower division than in the upper division.

After literally days and days and weeks and weeks of conference and argument of all possible phases of the problem, I finally came to the conclusion (as did the other members of the commission) that there was only one solution, and that was to suggest the even division of the water. The principle underlying this, I must confess, is only founded on the idea of fifty-fifty. There was no accurate basis on which we could make the division. However, the amount of water which will be allocated to each of the principals of the lower division, on the 50-50 basis, was far more than ample to take care of any reasonable expansion they might have for half-a-century or more to come, so the pact was finally agreed to upon this basis, and presented to the states for ratification. Six promptly ratified the pact. The seventh state, Arizona, refused to ratify the pact by a tie vote in the legislature.

Why Does Arizona Refuse?

The objections of the State of Arizona to the ratification of this pact are admirably stated in a letter from one of the high officials of the state. It is as follows:

We are told that the reason for the Colorado River Compact's being entered into at all is that the upper states in the Colorado River basin are looking ahead forty years or more to conserve to their posterity, if you will, the heritage of nature.

That is admirably expressed. That is the position of the upper states. They say, if you put in any dam or conserving works in the lower basin, we will try to stop you by every means in our power. We do this for self-preservation. We do not wish you to have a prior right under the doctrine of appropriation to our rights, thereby holding back any future developments which might occur in our upper states. And they are right in that attitude, and if you and I were in the same position we would be negligent in our duty if we did not take the same stand. The letter goes on:

In the lower basin Arizona occupies relatively the same position as does Colorado. California and Mexico will develop much more rapidly than this state, and unless an apportionment of the benefits of the river is made in the lower basin, Arizona is going to wake up and find that its greatest resource has been appropriated by California and Mexico.

There are two questions involved in the matter: irrigation and power. There is a theory in Arizona which will probably either be sustained or proved impracticable within the next few months, that two and one-half millions of acres of land can be irrigated from the water in the river and that if this is true, there will be no water for Mexican land. If Mexico, which will inevitably develop sooner than Arizona can, puts the water to beneficial use, our opportunity will be lost.

Then the power question: We believe that if California can charge us for oil and New Mexico for the coal produced within her borders, Arizona can charge California for power developed within our borders. We are anxious that our rights to do so be established before development is undertaken. The matter of the location of these damsites is of considerable importance to this state. It is generally agreed that whoever first develops power and puts in a distributing system, will inevitably get the monopoly. There is a strong sentiment in Arizona for states' rights, and the terms which were exacted from this state at the time she was admitted to statehood, which deprived her of the benefits of the great natural resources within her borders, impels many of our citizens to get for the state all that is possible from the development of this river.

There is a strong sentiment here greatly antagonistic toward permitting Los Angeles and Southern California to obtain the benefits that are naturally attached to those who put in the first power installation. There is also a very definite sentiment that power works on the river should be owned by the State of Arizona, that is, those that are wholly within the state, and that the advantages to be obtained from them go to the state.

Briefly, that is the objection of the State of Arizona. It is clearly and concisely stated, without mincing words. It is absolutely necessary, before any further developments are undertaken, that we have some kind of sound basis to go on. We must regard the views and regard the wishes of the people of the State of Arizona. The situation is unfortunately now at a deadlock. The question faces the officials of every state and the citizens of every state: What are you going to do about it?

What Next?

I present here a suggestion,—the first time, I believe, it has been made public. It is not original with myself. It has been discussed by many of the leaders of the government and in the financial world. It is based on the following idea:

Several years ago it became necessary, due to the congested condition of the harbor of New York, to create a new mechanism for collaboration in construction work to develop the harbor, and there was created by joint legislative action of the State of New York and the State of New Jersey what is known as the Port of New York Authority. The nature of this agreement can be best understood by a direct quotation from the law creating it:

"The Port of New York Authority is hereby authorized and directed to proceed with the development of the Port of New York" (or, as we would say, to have similar authority in the States of Arizona and California and Nevada to proceed with the development of the Colorado River). "Such authority or such agency is hereby vested with all necessary and appropriate power not inconsistent with the Constitution of the United States or of either of the participating states. This authority shall request the Congress of the United States to make such appropriations for deepening and widening the channels and such grants of power as will enable such authority to be effective." (Our text might take one more step to read: That such an agency as we might create request the Congress of the United States to make adequate provisions for flood control. Flood control appropriations are made for the Mississippi River and for every part of the country. Why should not the Colorado River receive such flood control appropriations?)

"It shall have power to apply to all Federal agencies, including the Interstate Commerce Commission, the War Department and the United States Shipping Board, for suitable assistance in carrying out said plan. It shall cooperate with the state highway commissioners of each state so that trunk-line highways as and when laid out by each state shall fit in with said comprehensive plan. It shall render such advice, suggestion and assistance to all municipal officers as will permit all local and municipal port and harbor improvements, so far as practicable, to fit in with said plan. All municipalities within the district are hereby authorized and empowered to cooperate in the effectuation of said plan, and are hereby vested with such powers as may be appropriate or necessary so to cooperate. The bonds or other securities issued by the port authority shall at all times be free from taxation by either state. The port authority shall be regarded as the municipal corporate instrumentality of the two states for the purpose of developing the port and effectuating the pledge of the states in the said compact. . . ." (See Laws of N. Y., 1922; Sec. 8 of Chap. 44.)

It seems to me that we have there a perfect analogy. It has been tried out legally. It appears entirely logical and practical for the States of California, Nevada and Arizona, after the pact is signed (it would, of course, be necessary to take care of the rights and needs of the upper states), for the three states to give authority to this entity or agency, which has the power to issue bonds, and which has the power to carry on construction work; in other words, modeled exactly after the authority given in regard to the Port of New York.

That is not the only example. Some years ago there was formed the Sanitary District of Chicago. While primarily of interest to the City of Chicago, numerous other agencies had to be brought in co-operation. The city could not do it alone; and the entity of the Sanitary District of Chicago was formed. This organization generates a large quantity of power as a byproduct, an incidental product, which I believe is sold through the Economy Light & Power Company of Chicago.

States Rights Defined

I do not propose that this authority, or entity, or agency, being created by the joint action of the three states should indulge in either the retail or wholesale generation or distribution or sale of power; that can be left to subordinate agencies which may or may not already be in existence; but the agency must be run primarily for the public interest, and the public interest alone.

Such an agency as I suggest would amply protect the State of Arizona, and would remove the objections that have been raised in the letter which I have just read. Such an agency could amply carry out the wishes of the State of California, because it is a public agency. Such an agency could carry out the desires of the State of Nevada, because under our form of government, the policies of the state are always the policies of the people, and are referred to the referendum and the ballot at different intervals, and if the people's wishes are not acceded to a change of government would rapidly ensue.

Developing Power Markets

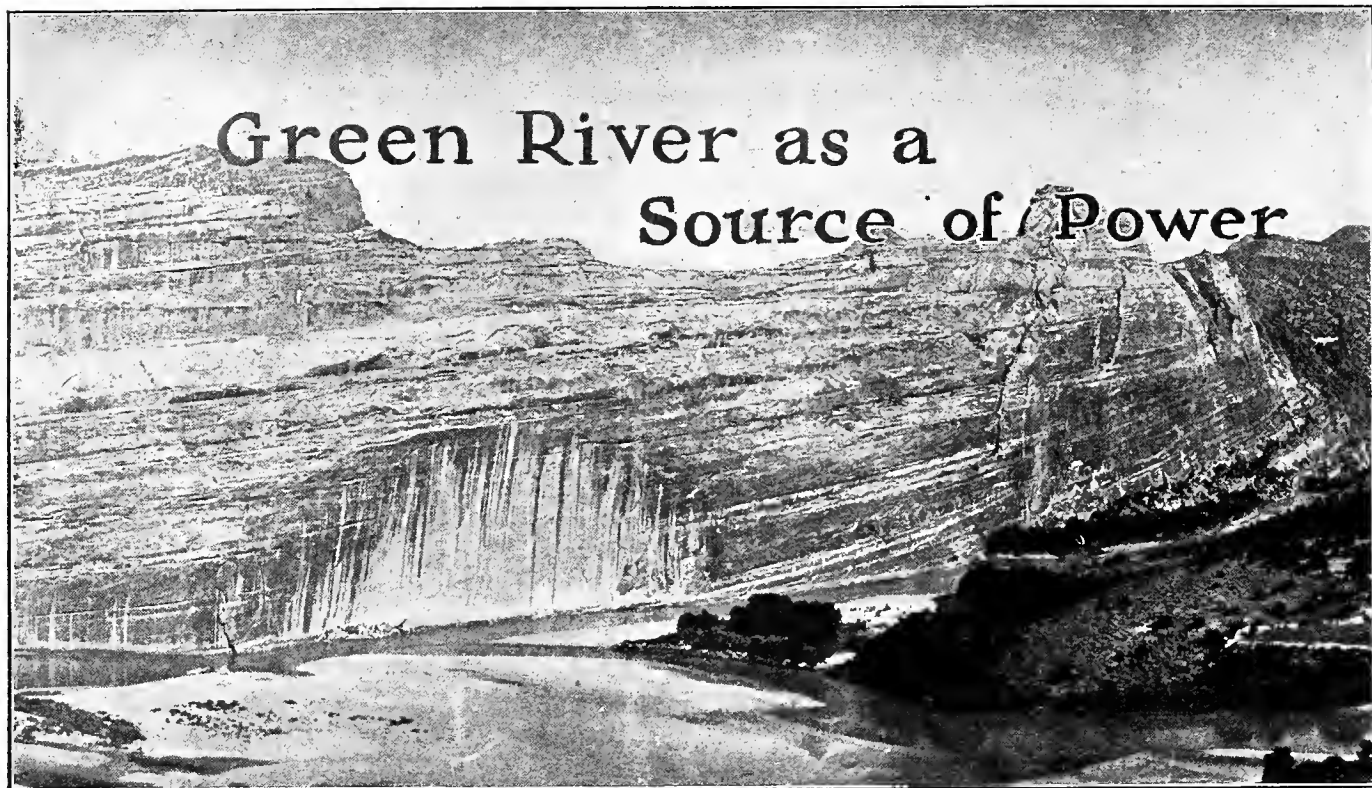
By this plan, I believe, the rights of the particular interests, who are engaged in the sale of power, would be also amply protected. There is no necessity of jeopardizing their rights in any way. This agency could be well used for the distribution of power so created. It may be said that the power market is well taken care of. Probably it is—and yet some 300,000,000 pounds of copper, produced in the mountain states is shipped to the Atlantic seaboard where it is reduced by the burning of coal under steam boilers,—whereupon a very considerable portion is shipped back again to the Pacific Coast. Why not take care of this somewhere in the West? That is our business. Then, too, we manufacture a great many million pounds of cyanide, almost entirely produced through electric processes. If my memory serves me there were many million pounds used as insecticide in the fruit industry; and I know that the State of Nevada consumes many millions of pounds in the silver and the gold mining operations.

There are unquestionably many other industries of this character which can be brought here which can use power, not necessarily horse power which has to be developed twenty-four hours a day, 365 days in the year. There will be flood periods when there will be an excess of power available from the waters impounded by this flood control dam, which should be put in the Colorado River. We ought to have the advantage of the use of that cheap power as a byproduct—a condition of things which normally and naturally belongs to our district of the country.

Prompt Action Urgent

A great natural asset—the greatest of our natural assets, perhaps—lies here almost entirely unused; instead of being a friend of man, it is a menace. A very considerable section of the Imperial Valley district of Southern California, at any time when tremendous floods occur, is in danger; there will be loss of life and property if they do occur, almost appalling to comprehend or conceive. But it can be stopped. It requires only an agency for promoting a mutual understanding between the states. If California, Nevada and Arizona will carefully study and consider the problem, I believe that without question the rights of each and every state can be fully and comprehensively protected by such legislation as I have suggested.

"Electric power which serves all industry sells lower in the market today than the pre-war price and has increased in twenty years its service from two and one-half billion kilowatt-hours to fifty billion, with the reasonable expectation that in five years more its service to all industry will be rated at one hundred billion hours annually. This is typical of the security of service in many lines, which promises to maintain in America the industrial leadership of the world."—Julius H. Barnes, President, Chamber of Commerce of the United States.



Green River as a Source of Power

By Ralf R. Woolley

Hydraulic Engineer, United States Geological Survey, Salt Lake City, Utah

FORTY-FOUR thousand square miles, or 18 per cent of the total drainage basin of the Colorado, are drained by Green River, and 32 per cent of the total discharge of the Colorado is contributed by this area.

Green River is the largest branch of the Colorado and until recently when the name of Grand River was changed to "Colorado River" the junction of Green and Grand Rivers formed the Colorado.

Green River rises along the west slopes of the Wind River Mountains in western Wyoming. Its course is southerly through southwestern Wyoming into Utah, thence east into Colorado and finally southerly and southwesterly through eastern Utah, emptying into the Colorado about 117 miles below the town of Green River, Utah.

Its length is approximately 700 miles and in that distance it drops from an elevation of 14,000 ft. above sea level at its source to 3,875 ft. above sea level at its mouth, an average fall of 14.46 ft. per mile.

A number of investigations have been made at different places along Green River to determine the irrigation and power possibilities but it was not until the recent survey made through the canyon stretches by the U. S. Geological Survey, of the Department of the Interior, that any definite data were available on the power resources.

All of the principal power sites are in the canyons within the 400-mile stretch of river between the towns of Green River, Wyo., a station on the Union Pacific Railroad, and Green River, Utah, a station on the Denver & Rio Grande Railroad.

The fall in the river between these two stations is in round numbers 2,000 ft., most of it in a series of eight canyons which still bear the names given to them by Major Powell at the time of his trip down the river in 1869.

Small basin areas, commonly known as parks, connect the canyons, except in the case of the stretch of river through the Uinta basin. Here the river flows in a meandering course across the basin and in a distance of 120 miles from the mouth of Split Mountain Canyon to the mouth of Jack Creek in Desolation Camp, the fall is 205 ft. or less than 2 ft. per mile. The current is sluggish, and frequent sand bars make the stream difficult to navigate even with small boats in low water season.

In 1921 the writer made a reconnaissance investigation of the power resources in the Upper Green River basin above Green River town in Wyoming. A number of small power sites could be developed on the tributary streams draining the west slopes of the Wind River Range and several small glacial lakes could be developed as storage reservoirs for both power and irrigation use.

The total amount of potential power available, however, is apparently less than 20,000 hp., and this is distributed among no less than eight different sites.

Other studies have been made of the Upper Basin to determine the irrigation possibilities. These were conducted by the federal government through the Reclamation Service in cooperation with the state of Wyoming and also by the state itself. The results of these studies indicate that more than



Horseshoe Canyon Damsite—Flaming Gorge Development.

400,000 acres of land are susceptible to irrigation from Green River and its tributaries, above Green River, Wyo., and this fact is one of the serious factors which must be considered in determining the future power possibilities in the canyons below.

As early as 1908, some studies were made by the Reclamation Service of the Brown's Park reservoir site, including a survey of the Brown's Park area, and a dam site at the head of Ladore Canyon, also some drilling was done at the dam site.

Then in 1914-15, a survey was made of the Flaming Gorge reservoir site and the dam site in Horseshoe Canyon was drilled. The results of these investigations indicated that the Flaming Gorge is the better project, being larger in storage capacity and more easily accessible.

Along with the work done at the Flaming Gorge site a survey was made of the Ouray reservoir site which involves that stretch of Green River in Uinta basin with a dam in the head of Desolation Canyon.

All of these surveys were made with the view of determining the best method of regulating the waters of the Colorado and putting them to the best use. Two major plans were proposed.

- (1) A series of reservoirs on the major tributaries.
- (2) A large reservoir at Lee's ferry or Boulder Canyon.

The compact lately drafted by the Colorado River Commission and ratified by all of the states interested in the Colorado River basin, excepting Arizona, is based on plan number two, for a large reservoir at some place in the canyon section below

the Arizona-Utah line, and a division of the river basin into two parts, "Upper Basin" and "Lower Basin."

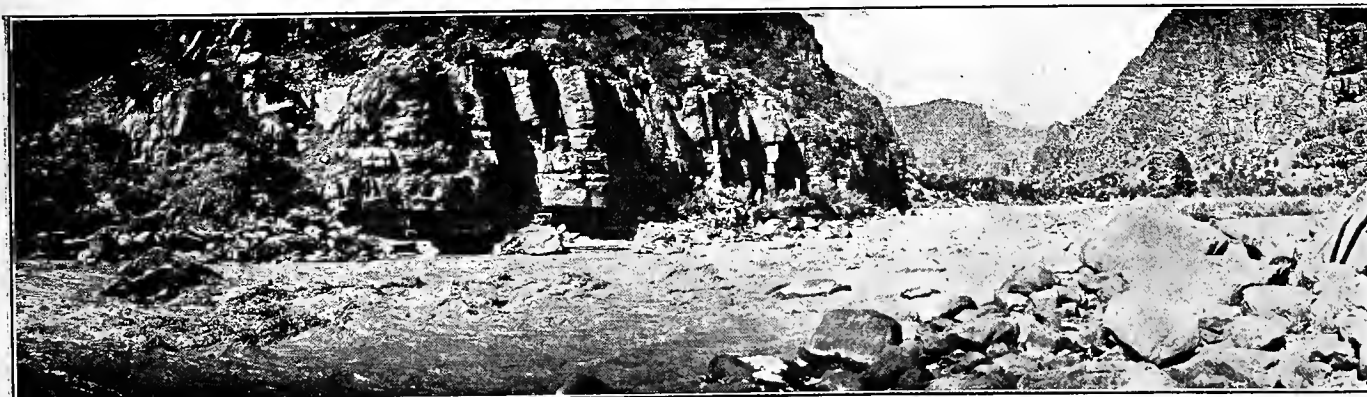
The physiographic features of the basin suggest this plan, and fortunately there is ample storage capacity at either Lee's Ferry or Boulder Canyon site to completely control the Colorado. This places the storage nearer to the large areas which can be irrigated and affords better control of the water. It also solves the flood problem on the river and, furthermore, it eliminates all possible interference of power developments in the "Upper Basin" with rights in the "Lower Basin."

Green River, after it leaves Wyoming, is chiefly valuable for power purposes and with the elimination of the necessity of building reservoirs on it for flood control, and irrigation needs in the "Lower Basin," its feasible power projects can all be developed without restrictions as there are apparently no large feasible irrigation projects along its course.

Accordingly, the Flaming Gorge reservoir site may prove to be a very valuable power site, upon further detailed investigation. It is sufficiently large to completely equalize the flow of Green River with a dam 220 ft. high, and with a "drawdown" of 50 ft. about 40,000 hp. could be developed, with the present stream flow.

Such a development at Flaming Gorge will add greatly to the power value of all other sites on the river below because of the stream flow regulation afforded by the reservoir.

The physical conditions along the stream suggest that the potential power be developed by a



Upper Disaster Rapid in Ladore Canyon.

series of dams, but not enough detailed investigations have been made to warrant a definite statement at this time as to the best location for these dams.

In the stretch of river from the Flaming Gorge site through Red Canyon and into Brown's Park, a distance of 49 miles, a fall of 470 ft. is available and it is believed that all of this can be developed. With an equalized stream flow of possibly 2,900 sec.-ft. the potential power in this stretch at 70 per cent efficiency is 132,000 hp.

Through Ladore Canyon, a distance of 20 miles, the fall is 270 ft. or 13.15 ft. per mile and with an

whether or not any of them can be developed economically under present conditions. Action by the commission has been deferred, however, and opposition to the granting of any permits on the Colorado River or its tributaries is evidenced by some of the Colorado River basin states on the ground that no permits should be allowed until the Colorado River compact has been ratified by all the interested states.

The only apparent market for the Green River power at this time is in the Great Salt Lake basin where the normal growth of power demand is now about 7,500 hp. per year.



Green River Lake at head of Green River in Wind River Mts., Wyoming.

estimated equalized flow of 3,000 sec.-ft. the potential power in this stretch is 65,000 hp.

At the mouth of Ladore Canyon the Yampa River comes in from the east with an average flow of about 2,500 sec.-ft., and from this point through Whirlpool Canyon, a distance of 8 miles, the fall is 95 ft.

Then after flowing through Island Park the river enters Split Mountain Canyon where its descent is at the rate of nearly 20 ft. per mile, being 145 ft. in the 7.5 miles of canyon.

The potential power then from the mouth of the Yampa River to the Uinta basin where the river leaves Split Mountain Canyon, is 119,000 hp. at 70 per cent efficiency, and with an assumed continuous stream flow of 5,500 sec.-ft., which will also require storage regulation on the Yampa River.

In the Uinta Basin the White River from the east and the Duchesne from the west add considerable water to Green River, so that the equalized flow which would be available for power use through Desolation Canyon by a dam near the head of the canyon, is about 7,000 sec.-ft.

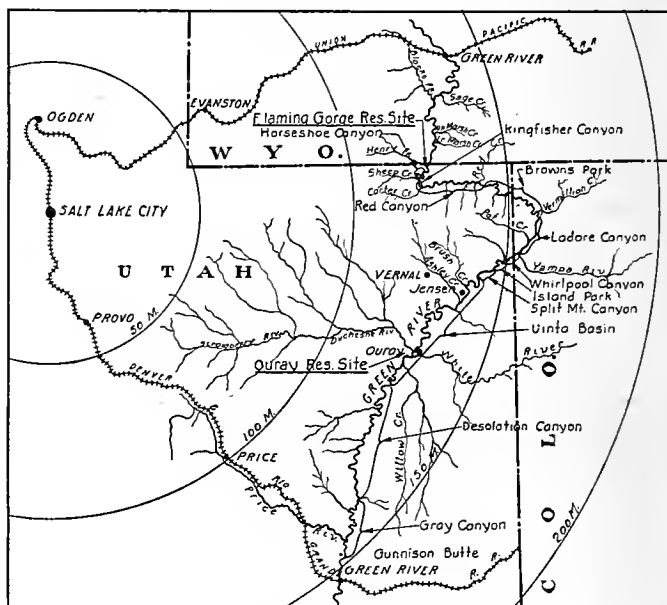
About 240-ft. head could be developed in Desolation Canyon and the potential power at 70 per cent efficiency would be 134,000 hp.

In Gray Canyon another 250-ft. fall is available and could be developed at what is known as the Rattlesnake site. Here it is believed that an equalized stream flow of 7,200 sec.-ft. could be developed, and, accordingly, the potential power in this stretch of canyon is about 138,000 hp. at 70 per cent efficiency.

Applications have been made with the Federal Power Commission for permits to study these power sites and determine with some degree of certainty

At this rate of growth it will be only three or four years until all of the power sites now easily accessible to the market will be completely developed and the logical inference is that the power from Green River must be developed to meet the growing market demands.

Serious consideration is given by the railroads at times to the possibility of electrifying parts of



Location of power sites on Green River.

their lines through the mountainous territory. In case this were done in western Wyoming on the Union Pacific line, and in Utah on the Rio Grande line, the Green River power would be reasonably close at hand and could be used to good advantage.

What Can Be Done to Improve Radio Broadcasting?

By J. J. Agutter

J. J. Agutter Company, Seattle

NOTWITHSTANDING the fact that radio broadcasting in the Northwest has degenerated, the writer believes that the potentialities of this wonderful instrument for the general good are so great that it is quite inconceivable that it should be allowed to fall into disuse or become a mere toy for the amusement of children. But the fact that it has degenerated is in itself sufficient evidence that it is in the wrong hands and immediate steps should be taken with a view to correcting this condition. It is in the hope of starting something in this direction that the writer presents what he believes to be a possible solution of the matter.

Broadcasting, as we know it today, is of such recent development that it is not surprising that it is in a chaotic state. It would be strange if it were otherwise, but that is no reason for letting it remain so. What we want now is broadcasting placed upon such a sound and permanent footing that we will be assured of continuous programs of quality.

In the end, the principal beneficiaries of a broadcasting station, assuming of course that interesting and well balanced programs are sent out, are the receivers of the service, that is to say, the listening public. However, it must be assumed that at present the operators of the stations are the most benefited, at least in this part of the country. Why? Because they are all operated for advertising purposes. On account of this fact, the programs offered are very naturally limited as to diversity and quality by the amount of money which these operators feel justified in spending in this particular form of advertising. It is quite reasonable, I think, that the present operators should see a limit to the advertising value of a broadcasting station, just as they see a limit to the value of any other form of advertising. This limit, then, is the thing that fixes the quality of the programs sent out by private operators, and, in this part of the country, it is soon reached.

In the past, some of the newspapers and mercantile establishments of the Coast have put on very interesting programs, but these programs were not entirely due to the enterprise and energy of the management of these institutions. Owing to the novelty of the thing, people and organizations of all sorts were not only willing but anxious to donate their services to these programs, some of them for the advertising they received for their efforts and some of them merely for the pleasure obtained from taking part in a novel form of entertainment.

This attitude toward the broadcasting station, however, is changing and very rapidly. The matter of providing programs is becoming increasingly difficult with all who have the handling of them for private stations. Many of those who formerly were quite willing to donate their services to programs

now demand real money for such services. Of course, this feeling applies principally to the professional element, but it is also manifesting itself among the better known amateurs.

Another factor affecting the programs is the attitude of some of the theatrical managers who now insert a clause in their contracts forbidding any of their artists from participation in broadcasted programs, thus tying their hands regardless of their personal inclinations.

If the above statements are true, it is apparent then, that if we are to have satisfactory programs in the future, more money and effort will be necessary to provide them, and the question now is, how much more will the present owners and operators of stations stand for? I am afraid that, not only will they balk at any additional load, but some of the best are likely to curtail even their present expenditures with a consequent falling off in the quality of their programs.

Now, what can be done to improve matters and get the sort of station and programs we desire? To me, there are two possible solutions: one is the establishment of a station by the big manufacturing interests whose chief business is the manufacture of radio apparatus, such as the Radio Corporation of America, and the other is the establishment of a station by one of the departments of the municipality.

With the first we can do nothing. If, for the protection of their business, they eventually find it desirable or expedient to establish stations about the country they will do so. On the other hand, if they see no such necessity, there will be no stations established by them, regardless of any attempted persuasion by outside interests.

With the second possible solution I am much more hopeful. In fact, to me it is the only solution of the local situation, and, the more I consider it, the more practical and reasonable it appears.

Before going into the merits of a municipally owned broadcasting station, however, let me say here that I am not opposed to the establishment of stations by private corporations or semi-public associations, if they can be properly managed; but proper management carries with it the responsibility of adequate financing.

The semi-public association, dependent as it is upon voluntary subscriptions or membership fees, in my judgment lacks the stability necessary for so important an undertaking.

On the other hand, a municipally owned station is assured of continuous operation, and to a very great extent would be free from the vexing program problems that confront the private or semi-public operator.

What are the benefits to be derived by the "listener" from a properly established municipal broadcasting station? To me they are just two; entertainment and education.

Now let us consider who the principal beneficiaries under the municipal plan are. Obviously, they are the citizens "listening in," for the status of the "listeners" has changed. Since the station is no longer operated as a private advertising medium, the citizens receiving the program are the only ones to be considered in the matter and whatever benefits accrue from the operation of the station are theirs.

One or two with whom I have talked have stated that they were afraid a municipally operated station would be used for furthering the ends of some politician. Did you ever hear of the library being used to further the political ends of anybody? Did you ever hear a political speech delivered in any of our parks? It is just as reasonable to suppose that a municipal broadcasting station would be free from the control of the politician as are the schools, libraries and parks. Moreover, any attempt to use it for political purposes would be promptly frowned upon by the citizens and press without discrimination.

I stated above that the "listener" received two things from a properly conducted broadcasting station—entertainment and education. The City of Seattle, like all large cities, maintains two departments whose sole reason for existence is to provide the very things we seek from a broadcasting station, viz., education and entertainment; and the departments furnishing them are the "library" and the "park." What, then, could be more logical or appropriate than the operation of a station under one or the other of these departments, thereby enabling it to further its usefulness by providing the citizens with the very things for which it was created, and at a time of day or year when it would be most beneficial and best appreciated?

Let us consider now why a municipally operated station might be regarded as a better proposition for the city than one operated by a private concern or a semi-public organization. First, the very fact of its being municipally owned would compel an interest in it by the citizens generally that would be largely or entirely lacking in a privately operated station. It becomes at once a civic institution for the general good, and, being assured of continuous operation, everyone within the city would take steps to avail themselves of its service.

Assuming that a municipally owned station is erected, what are the probable chances of its finding suitable material or talent for its programs not enjoyed by a privately owned station?

In the first place, a different attitude is always shown toward publicly owned institutions from that shown to those privately owned, and in a matter of this sort, as with the parks and library, it would no doubt be very marked indeed in favor of the municipally owned. Here is an institution for public entertainment and amusement as well as education. For the present, let us consider the entertainment feature

only. In the city of Seattle there are probably dozens of high class singing or choral organizations, several very good fraternal organization bands, amateur theatrical societies, and individual amateur artists by the score, all of whom could put on very creditable numbers. Not all of these, perhaps, would be willing to donate their services, but it is my belief that most of them would do so gladly for a few performances during the year, and on account of the large number of these organizations and individuals available in any large city, they would not be called upon to devote their services very often during a season. Fortunately, the season of the year when radio programs are most desired, is the season when everyone is available through the absence of outdoor attractions, and when musical and similar organizations are most active and willing to respond to popular demand for their services.

No account is taken in this argument of the professional entertainer or artist as these are available at any time the money is forthcoming to pay for their services.

And now for the educational side of the programs. To me, this feature presents such a valuable field for the operating departments of the city government that a broadcasting station under the control of the municipality should make an instant appeal to all department heads. Think of the information that might be broadcasted by these departments that could not reach the people in any other way. Every one of these departments has valuable information or suggestions that the citizens would appreciate receiving, but at the present there is no way of getting it to them except by the printed sheet through the mails, the cost of which makes it out of the question.

If programs of the character indicated were provided, how many people of the city would be without receiving sets? I predict, not many. The audiences that would hear these programs nightly during the winter months would be larger than could be packed into all the public auditoriums in the city. The various operating departments of the city would immediately come into intimate contact with the people with profit to all. The mayor would have an instrument for reaching the public, the value of which can hardly be estimated.

I stated at the beginning of this argument that a municipally owned broadcasting station would no longer be an advertising medium, and so far as furthering the ambitions of any private person or corporation is concerned, that statement still holds. However, being a municipal institution, it would at once become a valuable advertising agency for the city, and the citizens again become the chief beneficiaries as the advertisers.

The sale of radio apparatus is dependent upon the class of program broadcasted. Until a solution for this problem is found, manufacturer, dealer and the purchaser of radio apparatus must suffer alike. Why not let the electrical industry be the first to offer a constructive remedy?

Designing the Power Company Building

BANKS, department stores and insurance companies believe that part of the function of being a good citizen in the community lies in adding to its civic beauty and to its business efficiency by the stability and the modern convenience of the buildings which they occupy. The public utility is in somewhat the same class from the standpoint of the public in that it has a certain standard of dignity to maintain. A further point of resemblance, which is not so often appreciated, is that insofar as its home building is the place where it makes contact with its customers, its problems are somewhat similar to those of the department store and must be met with the same appreciation of psychological reactions to surroundings and treatment.

The new building of the San Joaquin Light & Power Corporation now under process of construction in Fresno, Calif., has been carefully planned with these elements in mind. The building is an imposing one of concrete faced with tile and brick, ten stories in height, topped by a seventy by twenty-foot ornamental electric sign. The location is in the heart of the business and shopping district where the beautiful structure will be an addition to the architecture of the city.

The interior arrangement has been studied from the standpoint of its convenience and efficiency, alike to the employees and the public. Many requests have been received from different parts of the country for copies of the plans to serve as models for power company offices elsewhere—and much interest is being shown in the community itself in the progress of the new building, which is regarded with some civic pride as an addition to the fast growing metropolitan district.

An important section of the ground floor will be occupied by the display and sales rooms of the Valley Electrical Supply Company, the retail merchandising division of the company's sales department. Here also will be the consumers' counter, the service and complaint offices and the stock sales information department.

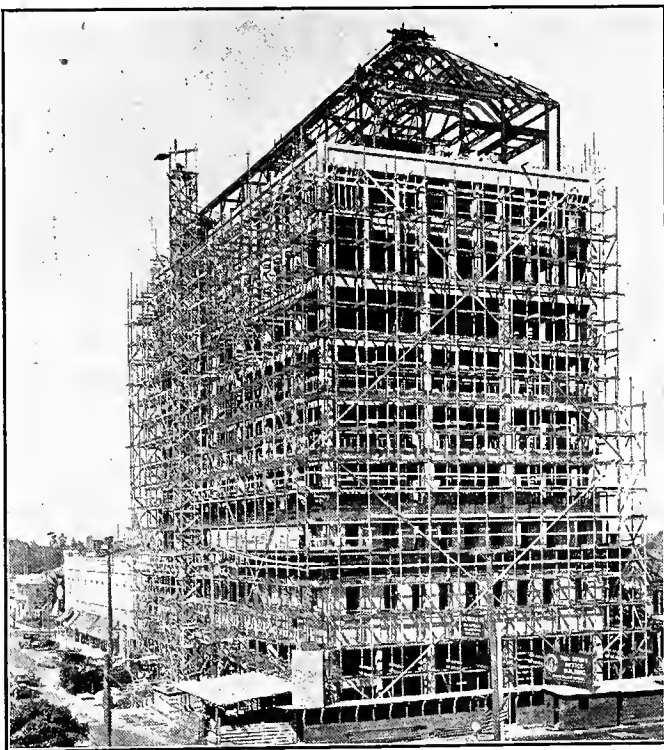
The consumers' counter will be of marble and subdivided into stalls, similar to a railway ticket office, making it possible for customers to conduct business with the counter clerk without interruption. Contrary to usual practice, the

customers' accounting department will not be located on this floor, but occupies a section of the second floor of the building, being connected with the counter where customers are served by a pneumatic tube system. The theory of this arrangement is to make useful every inch of space on the valuable ground floor and devote it to direct contact with the consumer. The accounting department not only takes up a large part of the floor space, but also introduces an element not directly concerned with the immediate service of those who enter. The consumer who finds the clerks busy at the counter is annoyed when he sees a large number of persons within call, all of whom are doing something else, not always obviously busy—in any case, not paying any attention to his needs at all. Everyone who is visible in the San Joaquin building will be at the immediate service of the public.

In the case of a request on the part of the consumer which requires information from the records, the details will be noted on a blank and shot through the pneumatic tube to the department above. Here all messages will be handled at once and the reply with data returned in the shortest possible time. In the meantime the customer is satisfied that his wants are being attended to—and the clerk is free to handle others who may be waiting. For those who have complaints to make or for cases where it is desired to have some measure of privacy, sound-proof offices are provided at hand in which to conduct the interview.

Service offices for the district manager and the Fresno City Water Company are located adjacent to the consumers' counter, providing a convenient means of contact between the company and the public for all business relative to electric and water bills, complaints, services and contracts. Rest rooms for employees and for the public are conveniently placed on this floor.

The sales room for the Valley Electrical Supply Company will occupy the remaining space on this floor with show cases and counters for the handling of electrical appliances and supplies. The offices and lighting fixture department will be located on the mezzanine floor which extends across the west side of the building with a floor space of 50 by 175 ft. This arrange-



San Joaquin Light and Power Building now under construction in Fresno.

ment of the fixtures has the advantage of leaving the lower floor clear with nothing to obstruct the overhead view across the tables and cases to the counter in the rear, while at the same time, the fixture department is visible from the entrance and gives the effect of being intrinsically a part of the main sales room, adding a touch of color and life to the rather austere effect of the interior.

A skylight from the light well of the building covers the center of the room which will be finished in light tones, the floor being Tennessee marble with verdi antique border and the walls in imitation Caon stone. Indirect lighting effects from concealed fixtures will provide a soft glow of light in addition to the daylight from the skylight.

The shop of the Valley Electrical Supply Company will occupy the basement space, together with the machinery for the heating and ventilating system of the building, the transformer vault and a large fireproof vault, 55 x 55 ft., for filing and the storage of records for the San Joaquin Light & Power Corporation and subsidiary companies.

A bronze clock, visible from all points in the room, will be placed over the main doorway at the Tuolumne and J Street entrance. The entrance to the elevator lobby will be in glass and decorative cast bronze featuring the San Joaquin Power emblem in relief.

Many Special Features Are Included

The Valley Electrical Supply Company has a section of the window space for its own display. This is to be wired in various ways to provide a complete demonstration of window lighting possibilities. By turning the different switches it will be possible to show exactly the effect of the method under discussion and to quote costs. Ordinarily the lights will be controlled by a flasher system which will hold the interest of the passer by with its continuously changing effects. In case a merchant is especially interested it will be possible to have his window dresser decorate the window with his own goods and then to show him exactly how it would look in his own establishment under different lighting conditions.

The second floor is to be occupied by the Fresno District offices, the chief collector, addressograph department, and mailing department, the latter receiving mail by means of a spiral chute extending from the second to the ninth floors. A pneumatic tube system extends from this floor to the consumers' counter on the first floor. The third floor and part of the fourth floor will be rented until required for future expansion.

The Fresno City Water Corporation engineering department and superintendent's office will be placed on the fourth floor, as will also the accounting department for stock sales.

The fifth floor will be occupied by the Medical Department, the Personnel Division, Research Division, the New Business or Power Sales Department, and Commercial Department. The Medical Department is a complete unit in itself and includes a rest room for employees, reception room, record room,

three consultation rooms, examination room for eye, ear, nose and throat, operating and recovery rooms, disrobing room, two surgical dressing rooms, a sterilization room, X-ray, photographing and developing room, hydro-therapy and massage room, plaster cast room and gymnasium. This is regarded as one of the finest medical departments in the West maintained by any private company.

The sixth, seventh and eighth floors will be occupied by the various engineering and general departments of the company. The executive division will occupy the ninth floor, where there will be provided offices for the management and assistants, legal department, publicity department, conference room and office of the system secretary.

The auditorium will occupy the floor space of 40 x 135 ft. on the tenth floor. The library will be placed on one end of the auditorium divided by a folding partition, making it possible to use the library floor space as part of the auditorium if necessary. At the west end of the auditorium a stage 15 x 21 ft. flanked by dressing rooms will provide a means for holding theatricals or other entertainments. A motion picture projecting room is placed over the library. A cafeteria and store room, lobby, check room and rest room, complete the auditorium floor. The auditorium opens through three French doors on the south side to a promenade balcony ten feet wide from which the country can be seen for many miles. Twenty illuminated cauldrons, each five feet high, are arranged along the balustrade of the promenade.

In the attic is the elevator machinery and an individual heating and ventilating unit for the tenth floor, making it possible to cut out the heating and cooling units for the office sections of the building during evening entertainments. In the attic is also the wireless broadcasting studio connecting with the aerials on the roof. A large water storage tank is also in the attic.

Building to Be Flood Lighted at Night

The flood lighting features of the building are in three stages. The first stage is concealed behind the cornice of a Marquis extending around the street sides of the building. The light from this bank of fixtures will flood the building to the eighth floor. From the eighth to the ninth floor a concealed bank of fixtures set in the tile coping will cover the building with a band of light to the balustrade on the tenth floor. The tenth floor will be flood lighted by a third bank of concealed fixtures along the promenade. The huge cauldrons lining the balustrade will emit steam from the exhaust, which will be lighted as it dissipates into the air, lending a very novel effect at night.

Crowning the tile roof will be a high electric sign that will be seen for many miles. Letters fifteen feet high will blazon forth the name "San Joaquin Power" so that all within a radius of many miles may see the monument of confidence and faith in the San Joaquin Valley that has been erected to better serve the 65,000 consumers of the San Joaquin Power system.



Good merchandising methods as exemplified by the sales room of the Alaska Electric Light & Power Company in Juneau, Alaska, are the explanation of the widespread use of electric appliances throughout our most northern territory.

Alaskan Electrical Industry Uses Modern Merchandising Methods

MANY people persist in thinking of Alaska as the land of ice and snow, as a land of privation and hardships. Many think of Alaskan towns as being filled with saloons and drygoods stores selling overalls, jumpers and red handkerchiefs. This is very far from the Alaska of today.

In certain parts of Alaska the homes are more modern than the average home in "the States"; women are better dressed, and most Alaskans enjoy conveniences that many of the residents of our larger cities do not enjoy. Juneau is an example of some of the larger towns of Alaska. The homes are well equipped, the stores are up to date so far as such necessary sales helps as good lighting, large and well lighted display windows are concerned, and offer for sale merchandise and clothes such as are found on Fifth Avenue, New York. Electric ranges are as near the point of saturation in Juneau as any city in this country or the world. During the spring, summer and fall, it is very common to heat homes by electricity. Washing machines and vacuum cleaners are likewise extensively used. It is easy to understand the popularity of electrical appliances when we consider the very reasonable rates of the Alaska Electric Light & Power Company for electric service, which are as follows:

- Lighting Service—6 cents per kilowatt-hour.
- Heating and Cooking—3 cents per kilowatt-hour.
- Motor Service—Motors 5 to 25 hp., 3 cents per kilowatt-hour.
Motors over 25 hp., special contract.
- Special Flat Rate—Electric water heaters, \$2.50 per kilowatt-month, based on 12-hour daily use, 6 a.m. to 6 p.m.
- Special Electric Heater Service—May 1 to November 1, \$2.50 per kilowatt-month.
- Minimum Monthly Charge on all classes of electric service—\$1 for first 1,000 watts connected load or fraction thereof, and 35 cents for each 1,000 watts in excess of first 1,000 watts connected load.

Alaskan merchandising methods are up-to-date in every sense of the word and many of the central

stations and dealers of this section of the country could well afford to learn from their enterprise.

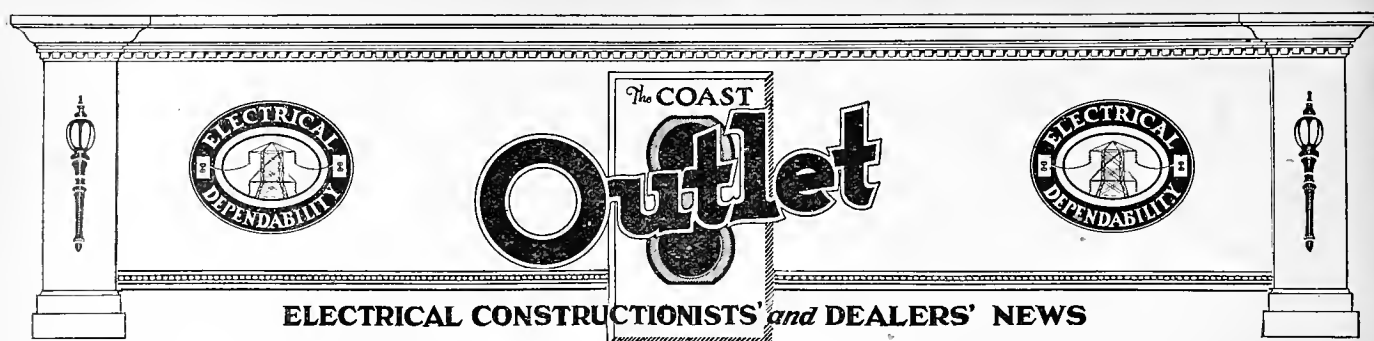
Mechanical Refrigeration Dates from Early Experiments in India

REFRIGERATION as a method of preserving food may be said to date back to the time of the Roman emperors who used the snows of the mountain passes to store the perishable supplies of their armies. At an earlier period the ancients recognized that the drying of foods by sun or heat preserved their lives. From these two methods has gradually been developed the preservation of foods by dry cold.

The earliest inventors turned their attention to the manufacture of ice by artificial means. Ice was made in India at a very early date by the rapid evaporation of water. The first ice machine to manufacture ice was put in operation by Dr. Cullen in 1755, using the principle of the evaporation of water under vacuum. At about the same time, Savoisier operated a machine by using the evaporation of ether. In 1824 Vallance patented a machine operating on the evaporation system as practiced in India.

The first really successful machine was perfected by Perkins of London in 1834 with a volatile gas as the chilling medium. Carre followed with an ammonia absorption system in 1850. From this time on the improvements were rapid, until today we have a multitude of highly perfected machines.

During all the experimenting and perfecting of the method, untold fortunes have been spent in the development of small plants for the home. The first successful machine in this country was the Frost-maker of Chicago which was placed on the market about 15 years ago. Today we have about twenty highly successful machines. Homes with mechanical (which in this case means electrical) refrigeration still number less than 30,000, however. And it is said that there are 2,000,000 washing machines in use and 9,000,000 automobiles.



Electrical Construction

By E. Earl Browne

THE RULES as to the exact method of grounding and the voltage limits requiring grounding are somewhat different in the various electrical codes and ordinances and the contractor will therefore have to apply such minimums as are effective in the municipality or state in which the work is to be done.

Insofar as the electrical contractor's work inside a building is concerned, it is in general the object of all these rules to ground all conducting bodies inclosing or near electrical circuits, such as motor and generator frames, transformer cases, switch cases, cabinets, conduits, switchboard frames, cable armor, piping, in fact any metallic body inclosing or near an electrical circuit which is accessible to persons or is in a place where there are inflammable substances. On account of the great number of cases which would come under this head, they cannot all be discussed in detail, but general principles can be pointed out and detailed discussions given to those which seem most important. The 1920 National Electrical Code being the nearest approach to a universal guide, its provisions in reference to grounding will first be tabulated.

Rules 1c, 8a, and 15 Am require grounding of generator and motor frames when operating at more than 150 volts or if not grounded they shall be insulated from ground.

The current capacity of the ground conductor must not be less than that provided by the following table:

Capacity of nearest cutout protecting the equipment.	Required size of copper ground conductor.
0—100 amp.	No. 10 B. & S. gage
101—200 amp.	No. 6 B. & S. gage
201—500 amp.	No. 4 B. & S. gage
501 and over amp.	No. 2 B. & S. gage

With portable equipment protected by fuses not greater than 10 amp. No. 18 B. & S. gage ground wire may be used.

Rules 8b and 44a require grounding of shields, casing and conduit in connection with a motor operating at a voltage above 600 volts. Where metal sheathed cable is spliced with sheath not installed over splice the ends must be bonded by a No. 6 B. & S. gage copper wire and approved ground clamps.

Rules 11a, 11b, and 45b require that all transformer cases be grounded, except those used exclusively to supply current to switchboard instruments and installed and guarded in all respects as required for the higher voltage circuit connected to them.

Rules 12f, 15 Ai and 15 An require that service conduit be grounded unless it is insulated from ground and if necessary the conduit may be isolated or guarded. The rules provide that the ground shall be not less than No. 8 B. & S. gage copper wire and it must be run directly from the conduit. No portion of the interior conduit shall be used as a part of the ground conductor.

Rules 15a, 15 Ab, 15 Ac and 15 Ak require the grounding of three-wire d.c. distributing systems when exposed to leakage or induction through overhead circuits above 600 volts at one or more supply stations, but not at individual services or within buildings served. The rules do not permit the grounding of two-wire d.c. distributing systems unless they are exposed to leakage or inductions from overhead circuits of higher voltages. The ground conductor must have a current capacity not less than one-fifth that of the grounded conductor at the point where the ground conductor is attached and must not be smaller than a No. 8 B. & S. gage copper wire.

Rules 15b, 15 Ad and 15 Ak require the grounding of all secondary a.c. distribution systems, except furnace circuits and circuits entirely unexposed to leakage or induction, when of 150 volts or less between the grounded point and any other point in the circuit. When the potential exceeds 150 volts grounding is optional. The ground conductor must not be smaller than No. 8 B. & S. gage copper wire, nor smaller than one-fifth of the current carrying capacity of the wire to which it is attached, except it need not be larger than No. 0 B. & S. gage copper wire.

Rule 25C3 requires the grounding of all stationary heating appliances operating on circuits above 150 volts to ground.

Rules 15Ai, 15An, 27c, 28f, 29e and 39i require the grounding of the metal armor of armored cables and interior conduits and metal raceways for surface wiring, and of metal troughs for outline lighting. The rules require the use of No. 10 B. & S. gage copper wire where the largest wire contained is not greater than No. 0 B. & S. gage, and state that the ground wire need not be greater than No. 4 B. & S. gage where the largest wire contained is greater than No. 0 B. & S. gage. If systems are in several separate sections, the sections must be bonded to each other and the system grounded or each section may be separately grounded (See Fig. 1).

Rule 43e requires that motor and crane frames and tracks of electric cranes be grounded.

Rule 43Ae does not require the grounding of conduit or armored cable attached to elevator cars. Motors or motor-generator sets when mounted on metal beams, which form a part of the structural metal frame of the building, are considered as being sufficiently grounded.

Many specifications refer to the "National Electrical Safety Code" for fulfillment of its provisions in so far as they may apply. In general it is a parallel of the (Fire) Code, except in certain cases where the sizes of ground conductors vary from the Underwriters Code, particularly in reference to service conduit grounds, for which the (Safety) Code recommends No. 6 or larger copper wire.

In the State of California the Industrial Accident Commission has rules covering grounding in its "Electrical Utilization Safety Orders" and the interpretation of these rules is as follows:

Service entrance conduit shall be grounded inside the building (order No. 732) with separate ground wire not connected to neutral ground. The ground wire shall be No. 6 B. & S. gage copper wire where wires in the service conduit are not larger than No. 0 and need not be greater than No. 4 for larger wires.

The neutral wire of all three-wire secondaries, except three-phase and d.c. neutrals, shall be grounded ahead of the service switch and inside the building with an insulated copper wire of size indicated by main service cutouts and Table I.

This ground shall always be run as a separate conductor from neutral to ground and be installed the same as required for a current carrying conductor, i.e., unless run in approved conduit it shall be protected by porcelain bushings through walls and partitions and installed as required for knob and

tube work. When run in conduit, the conduit shall be grounded, preferably by bonding to the service conduit or the service conduit ground wire (d.c. neutrals shall not be grounded within a building).

All utilization equipment shall be grounded when connected to circuits of over 150 volts to ground. When over 150 volts to ground and less than 300 volts potential all equipment may be grounded to the conduit which carries its feed wires. When over 300 volts potential a separate ground on the frame or case of the equipment is required.

All metal conduit, metal moulding and metal armored cable and cord shall be grounded with copper wire of size in accordance with Table I.

More than one ground wire may be run in the same conduit or one wire of sufficient size to equal the total carrying capacities of the connected ground wires may be used as a bus ground conductor, if grounded at more than one place. The neutral ground and the service conduit ground shall not be run in the same conduit with grounds for building installation or utilization equipment. The neutral ground and service conduit ground may be run in the same conduit, the neutral ground being an insulated wire.

Bare wire (except for neutral ground) may be used. Ground wires must be run in a substantial manner but need not be run as required for a circuit wire.

TABLE I—REQUIRED SIZES FOR GROUND WIRES
(Except Service Entrance Conduit)

Capacity of automatic cutouts in amps.	Size of Copper Wire
0— 60	No. 10 B. & S. gage
61— 100	No. 8 B. & S. gage
101— 200	No. 6 B. & S. gage
201— 600	No. 4 B. & S. gage
601—1000	No. 2 B. & S. gage

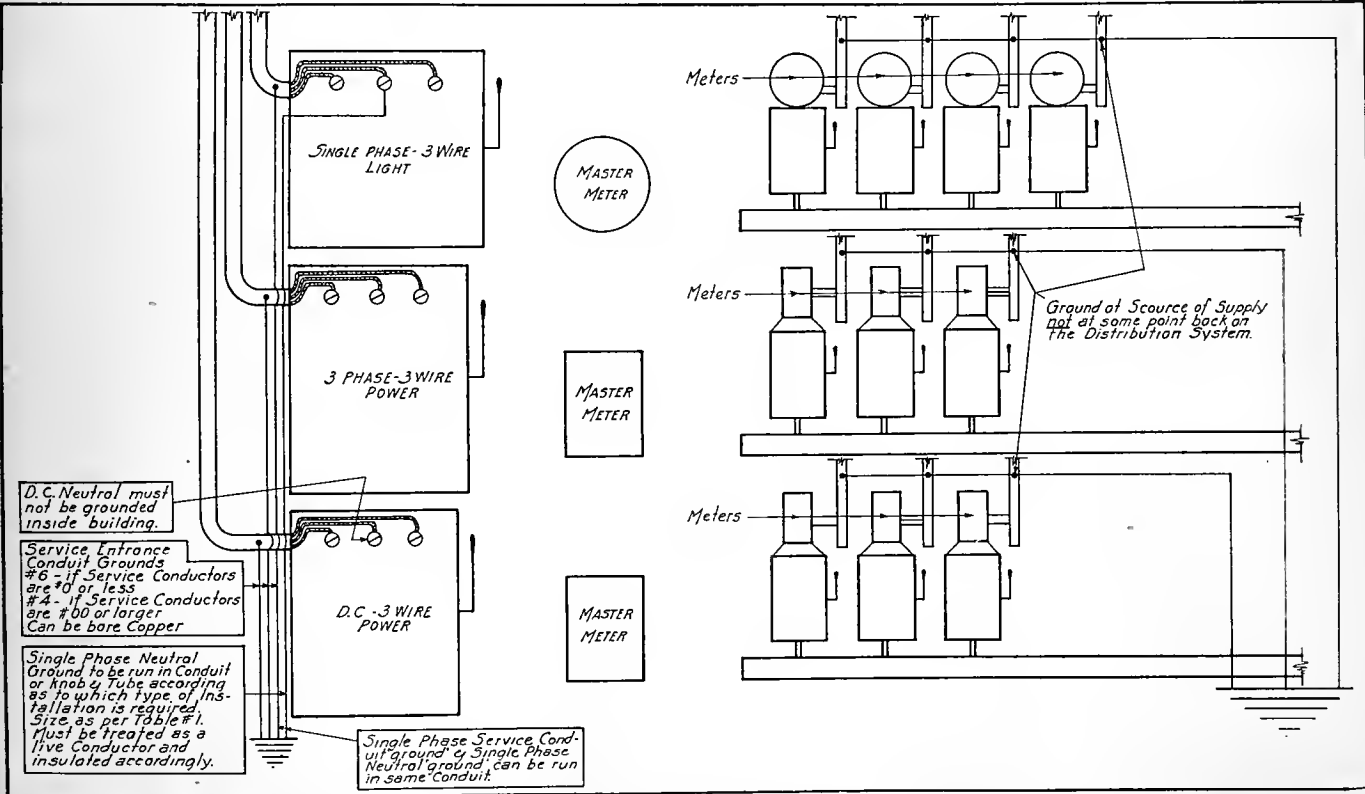
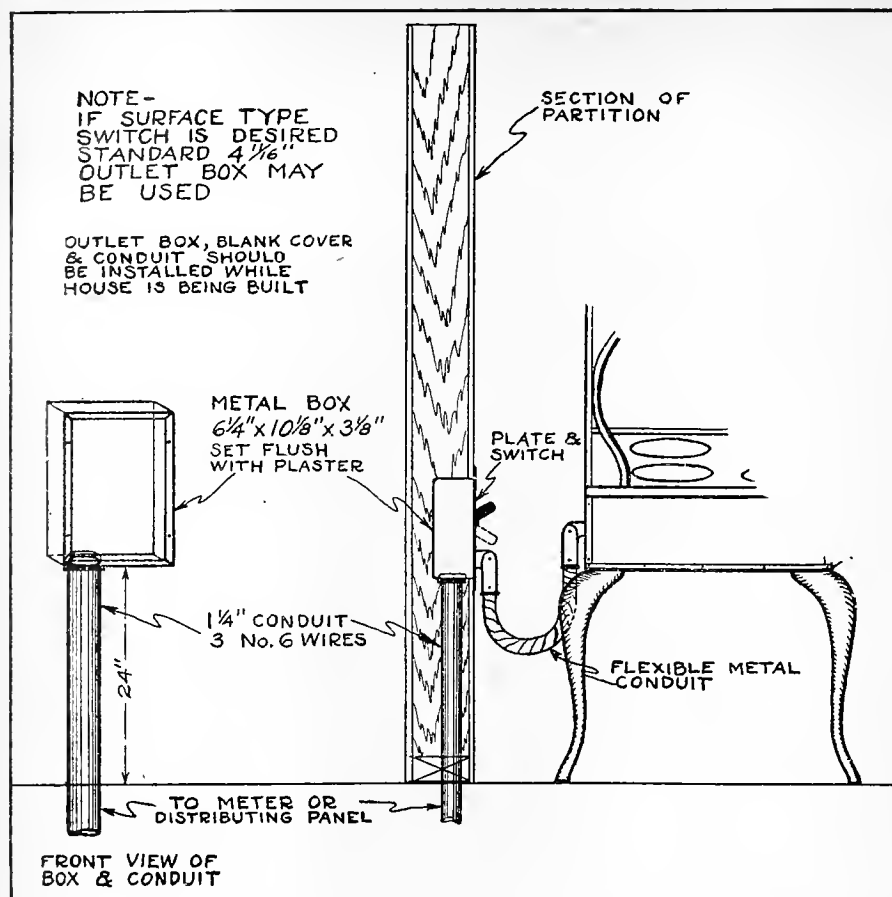


Fig. 1—Diagram showing grounding necessary to comply with the rules of the Industrial Accident Commission of the State of California.



The reverse side of the wiring specifications leaflet shows how to install an electric range.

Condensed Wiring Specifications Aid Contractors

California Electrical Cooperative Campaign Presents Residence Wiring Specifications in Printed Leaflet

In an effort to secure better electrical construction in new homes in California, the California Electrical Cooperative Campaign has recently prepared a printed list of electrical specifications for residence wiring. The specifications that have been included in the text are the same as those the Campaign has been sending out to electrical contractors, architects, builders, and other interested parties for the past year, but in addition to these, the new leaflet has printed on its reverse side a drawing showing the correct method of wiring an electric range. The mailing list of the Campaign has been used in sending out the new specifications and in this way a greatly diversified list of persons has been reached.

The specifications are particularly of interest to the electrical contractor and the architect in that requirements, to make the home modern, are stated in an exceedingly clear and concise manner. Many architects are taking advantage of the work done by the Campaign field men and are embodying the specifications in their specifications for new homes. By so doing they are sure that correct practice is specified and also that they will secure the cooperation of the electrical contractors who are acquainted with the specifications.

The leaflet is of considerable value to the electrical contractor in that it gives him some definite list of specifications that he can show to prospective customers, without going to the trouble of figuring up a set for the particular job.

A few contractors have also found that the specifications, with only minor changes, can be used in rewiring old houses.

The specifications as prepared by the California Electrical Cooperative Campaign are as follows:

General. The object of these specifications is to include all that is necessary for a complete wiring system from the local power company's service to each and every outlet throughout the building, including main service switch, feeders, distributing panels, cutouts, fuses, circuit wiring, convenience outlets, local switches, bells and bell wiring, etc.

All of the above shall be done in accordance with these specifications and plans accompanying them, and in a manner satisfactory to the architect, and all materials shall be of the highest standard quality.

The work shall conform to the rules of the "National Electric Code" and the local ordinance governing electrical installations. All necessary certificates shall be obtained by the electrical contractor at his expense and delivered to the architect before work is accepted.

Main Service Conduit. A 1 1/4-in. galvanized iron main service conduit with suitable three-wire weather drip fitting shall be installed from the meter location to a convenient point on the outside of the building for the power company to make connection.

Electric Range Conduit. Install a 1 1/4-in. iron conduit from meter location or power distributing panel to location of range in kitchen and terminate in flush metal outlet box, set 24 in. above kitchen floor; and cover with blank metal cover. (This conduit to accommodate three No. 6 wires when required.) (110-220 volts.)

Outlet Boxes. At each and every switch, wall, ceiling, convenience outlet or other outlet shown on plans, install a metal outlet box of a style most suitable for the purpose of the outlet. All outlet boxes must be rigidly secured in place by approved methods and those intended for fixtures shall be provided with a fixture stud.

Water Heater. From meter or distributing panel to location of hot water boiler, install one pair of No. 10 B. & S. gage wires. Terminate in 3-in. deep outlet box located about one foot above floor. (Arrange for 220 volts.)

Heater Outlets. Each heater outlet (exceeding 660 watts) shall be wired on a separate circuit of not smaller than No. 12 B. & S. gage wire and protected by a separate cutoff. Twenty or twenty-five amp. concealed contact flush receptacles shall be installed on circuits intended for portable heaters. (Arrange for 220 volts.)

Convenience Outlets. The branch circuit wiring for all convenience outlets shall be independent of the lighting circuits, and shall consist of No. 12 B. & S. gage wire with not more than eight single or four double outlets on any one circuit, and shall be arranged so that if the consumer desires a separate, or "power rate," meter can be installed on this circuit. All convenience outlets placed on this circuit shall be the "Standard" concealed type together with brass beveled edge cover plates. (110-volt circuits.)

Outlet Heights. Unless otherwise indicated or directed, convenience outlets shall be located in baseboard; wall bracket outlets, 5 ft. 6 in. above finished floor; wall switches, 4 ft. above finished floor, to center of outlet.

Switches. Local wall switches shall be approved flush toggle or tumbler type with brass beveled edge cover plate. The brass cover plate for all convenience outlets and switches shall be finished to match other hardware in same room, or as directed by the architect.

Bells. The electrical contractor shall furnish and install all bells and bell wiring in an approved manner as shown on plans. The current shall be supplied through an approved bell-ringing transformer, which shall be furnished and installed by the electrical contractor.

Public Telephone. Furnish and install, in a manner satisfactory to the Pacific Telephone & Telegraph Company, No. 18 gage triple braid wire from each outlet shown on plans to base-ment.

Northern California Firms Join State Association

A survey of the north coast section of California has just been completed by James W. Redpath, secretary of the California State Association of Electrical Contractors and Dealers. The survey was made in connection with the drive for a 2,000 membership for the Association. Mr. Redpath visited all of the cities and smaller communities from Arcata on the north to Healdsburg on the south.

As a result of the visit of the secretary to the northern cities ten firms took out membership in the Association. The firms which in the future will display the "Electrical Dependability" trade mark of the Association are:

Arcata Electric Shop, Arcata;
Eureka Electric Shop, Eureka;
Safety Electric Works, Eureka;
Fred Sundberg, Eureka;
Fortuna Electric Shop, Fortuna;
George L. Edelmann, Fortuna;
Ferndale Electric & Supply Shop, Ferndale;
Chaney & Tucker, Healdsburg;
H. C. Thurston, Ukiah; and
O. C. Williams, Cloverdale.

Two Stockton, Calif., firms and one in Modesto, have recently joined the California State Association of Electrical Contractors and Dealers. The concerns in Stockton that have recently become members are: the Green Electric Company and the firm of C. E. Stanley. E. A. Taggart is the proprietor of the Modesto concern bearing his name that has joined the Association.

The Eureka Electric Shop, Eureka, Calif., is undergoing extensive alterations. A color scheme, which will add materially to the attractiveness of the interior of the store, is to be used.

E. H. Knutz of the Arcata Electric Shop, Arcata, Calif., contemplates a business trip to San Francisco in the near future.

Increasing the Volume of Sales and Net Profits

British Columbia Electrical Contractor-Dealers Given Advice Concerning Increasing of Yearly Business Total

To increase the volume of business is the aim of every contractor-dealer who is anxious to increase his profits. For if the volume of business is increased and the margin of profit is not reduced, the net profit to the owner of any establishment will be larger than under a smaller volume of business.

A pitfall into which many business firms may be drawn, is to increase the volume of sales but at the same time reduce the margin of profit at which these sales are made. As can readily be seen, the result will not be what the firm manager is desiring and despite the fact that larger gross sales are recorded the net profit may be even lower than that made during the preceding year.

In an effort to guide the electrical contractor-dealer members of the Electrical Service League of British Columbia along the correct paths in accounting practice as regards the correct procedure when planning on increasing the volume of sales, a bulletin has been prepared on this subject. Rey E. Chatfield, secretary-manager of the League, who is responsible for the bulletin, has endeavored to show the members how they should go about their work of figuring what their sales should be in the coming year to secure the desired increase in volume of business.

It is the opinion of the writer of the bulletin that sales should be budgeted for the past year and that the results obtained should show the exact volume of business for each month. Then the firm manager should determine what percentage of the total year's sales, each month's sales are. In this way he will find just what per cent of his total yearly sales each month must contribute. When figuring the budget for the coming year, the manager should apply these same percentages to the new total and thus determine how much his sales for each month must be in order to secure the larger sales volume for the year.

The letter, which is headed "Budget Your Business," reads as follows:

"At the recent convention Mr. Davis of the Association of Electragists, International, suggested that every contractor-dealer at the beginning of the year, prepare a budget of operations for the coming year.

"This is certainly a wise policy but the contractor-dealer who prepares such a budget must remember one thing—volume of business obtained below the

margin set in the budget leads to financial trouble.

"The methods of preparing a business budget are various but the principle is basic. For example: assume your business for last year was \$40,000 in volume, overhead expense \$10,000, or 25 per cent, and the net profit amounting to \$2,000, or 5 per cent.

"By raising the volume of business to \$50,000 you can reduce your overhead percentage to 20 per cent and still make 5 per cent net.

"List your sales for the past year by months. Then prepare your sales budget for a \$50,000 gross volume.

"The right hand column is bogey for a \$50,000 business, but business to make this volume must carry a markup of 20 plus 5 or 25 per cent on selling price, which is obtained by marking up net cost by 33 1/3 per cent.

"When one month falls below the budget volume the contractor-dealer must either increase his markup or go after new business on the basis of markup in the budget.

"Every golf course has a par or bogey for the course—it is a mark to shoot at, in playing a game of golf; likewise every business should work on a budget basis. The contractor-dealer who takes work on a margin less than that on which the budget is based, is like the golfer who makes a "good" score by forgetting to count all his strokes. He is lying to himself and to his friends. The contractor-dealer who takes work below his estimated overhead and profit LIES TO HIMSELF and TO HIS CREDITORS.

"Plan carefully the volume of business you wish to do each month.

"Watch and budget every item of overhead expense in advance, and stick to the program you have laid out.

"Above all,

"Play the Game.

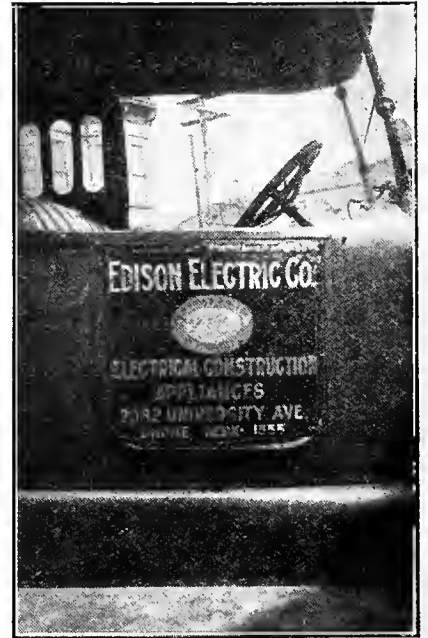
"REY E. CHATFIELD,
"Secretary-Manager."

The Commercial Electric Company of Pocatello, Idaho, has recently opened a new sales room at 308 North Main Street in that city. R. Avis, who has been manager of the electric department of the Pocatello Auto Company since last November, has been appointed manager of the Commercial Electric Company and will supervise the purchasing of a line of electrical appliances for the concern.

Adaptability of Association's Emblem Demonstrated

The adaptability of the "Electrical Dependability" trade mark of the California State Association of Electrical Contractors and Dealers, has recently become more marked. After the adoption of the trade mark, its application was made to letter heads, window stickers and placards to be placed on jobs done by members of the Association.

Recently, however, a wide use of the emblem has been made and as a result the trade mark has been brought to the attention of the public in a more forceful manner. Several pieces of advertis-



One of the cars of the Edison Electric Company showing the panel.

ing in novel form have been prepared by members and have been distributed to the public. Some time ago Victor Lemoge, a contractor-dealer of San Francisco, and now president of the Association, distributed small whetstones, on the back of which appeared his name and the Association emblem. These attracted a great deal of attention both because of their utility and their attractive form.

In Berkeley, Calif., a local firm, the Edison Electric Company, has recently purchased leather panels to be attached to the company's cars. These panels carry the name of the company and just below this appears the Association emblem. The panels may be attached to the door of any car and they notify the public that the Edison Electric Company is one of the contractor-dealer firms which can be relied upon for "Electrical Dependability."

R. V. Oyler, manager of the company, was responsible for having the panels prepared for the cars. From all indications the move was a wise one and the people of Berkeley are beginning to recognize that every firm that displays the Association emblem is a reputable one. Undoubtedly the displaying of the sign in every-day business has had a great deal to do with creating this feeling.

Sales of Past Year			Budget for New Year		
Jan.	\$1,000	2½ %	Jan.	2½ %	\$1,250
Feb.	1,200	3 %	Feb.	3 %	1,500
March	1,500	3¾ %	March.	3¾ %	1,875
April	2,000	5 %	April	5 %	2,500
May	3,000	7½ %	May	7½ %	3,750
June	5,000	12½ %	June	12½ %	6,250
July	7,500	18¾ %	July	18¾ %	9,375
Aug.	7,000	17½ %	Aug.	17½ %	8,750
Sept.	4,000	10 %	Sept.	10 %	5,000
Oct.	3,000	7½ %	Oct.	7½ %	3,750
Nov.	2,800	7 %	Nov.	7 %	3,500
Dec.	2,000	5 %	Dec.	5 %	2,500
Total,	\$40,000	100 %	Total,	100 %	\$50,000

JOBBER, DEALER AND SALES AGENT



First Electrical Barbecue Held in Ephrata, Wash.

Central Station Representative Aids Entire Electrical Industry
by Electrifying Institution of Long Standing

Electricity has been proved to be such an effective cooking agent in both home and hotel kitchens that it has recently been given an opportunity to show that it is also the best heat source even for the barbecuing of large quantities of meat. It would seem that in the cattle country surrounding Ephrata, Wash., where there is an ample supply of wood, this fuel would be used by nearly everyone and particularly by men in charge of a rodeo who had an old-fashioned barbecue to prepare.

The natural assumption has been proved wrong, however, largely because of the efforts of H. I. Klehm, district agent of the Washington Water Power Company at Ephrata, under whose direction Ephrata has gained the distinction of having the first electrical barbecue that has been recorded. A large roundup, similar to the famous Pendleton Roundup, is held annually in Ephrata by the Ephrata Roundup Association. At this time cowboys from considerable distance come to the town and enter into the various races and contests that are on the roundup program.

As an advertising idea to show how cooking by electricity is superior to any other means, Mr. Klehm offered to supervise the installation of electric heating elements in the pit that was to be used in cooking the meat. The offer was accepted and the installation was made several days prior to the date of the barbecue. A considerable heating surface was necessary as over a ton of meat was to be cooked for the barbecue.

The oven that was used to cook the meat was an open pit 32 ft. long, 4 ft. wide and 6 ft. deep. Twelve heating elements each of 3-kw. capacity were suspended in this pit. These elements were assembled in three groups of four elements each. About one hundred and eighty feet of No. 14 iron wire was used to make each element. The elements were set about 12 in. above the bottom of the pit. To spread the heat out over the entire pit, deflectors of sheet iron were installed about 12 in. above the heating elements. Bars to hold the meat were placed 18 in. above the deflectors. To keep the heat inside of the pit steel plates were placed over the top. In this way the pit acted in much the same way as an ordinary oven would. Current was carried to the heating elements through three wires, the voltage being 110 and 220 volts. As it was necessary to maintain a constant heat in the pit, a Westinghouse Electric & Manufacturing Company thermostat

was connected in the circuit. This feature added considerably to the success of the experiment.

The barbecue was scheduled to be held at noon on July 4 and all preparations had to be made to have the meal ready on time. It was understood that approximately three thousand five hundred people would be at the meal and a suitable quantity of meat was procured to feed that number. The animals were secured from among those gathered together at the roundup and were

and was cooked at 550 deg. for two hours. At two o'clock on July 3 the heat was reduced to 350 deg. and was maintained there for a period of four hours. For the next six hours the meat cooked at a temperature ranging between 250 and 300 deg. Thus at midnight on July 3 the meat had been cooking for 12 hours and the chef in charge of the barbecue ordered the temperature lowered to 200 deg. This temperature was held for the remaining twelve hours until it was time to serve the meat.

Coffee to be served to the visitors was also prepared by electricity. The coffee was first cooked in a caldron and was then kept hot in a range boiler equipped with a 750-watt heater.



The oven in which the meat for the first electrical barbecue was cooked may be seen in the picture reproduced above. The heating elements were placed about two and one-half feet below the meat.

brought to the pit on July 3. Four steers, weighing approximately two thousand pounds, were dressed and prepared for the barbecue by local butchers.

Heating of the oven started at midnight of July 2. The current was turned on until the oven had reached a temperature of 550 deg. F. and the thermostat kept the oven at that temperature. Twelve hours after the heating had started the meat was placed in the oven

It was estimated that 5,000 people were present at the Ephrata Roundup on July 4 and of this crowd, between three thousand five hundred and four thousand people were fed at the barbecue. The "electric beef" was the main item of the meal and with it were coffee, pickles and bread. Mr. Klehm's skillful operation of the oven was responsible for the roast beef that was cooked with all of the juices preserved.

ELECTRIC IRONER DIRECTORY

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A list of Electric Ironer Manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way, mention the **Journal of Electricity**.

Key to Abbreviations

E—electric heat
G—gas heat
Gn—gasoline heat
Wx—Westinghouse

GE—General Electric
R&M—Robbins & Myers
Dom—Domestic

WE—Western Electric
B—belt drive
G—gear drive

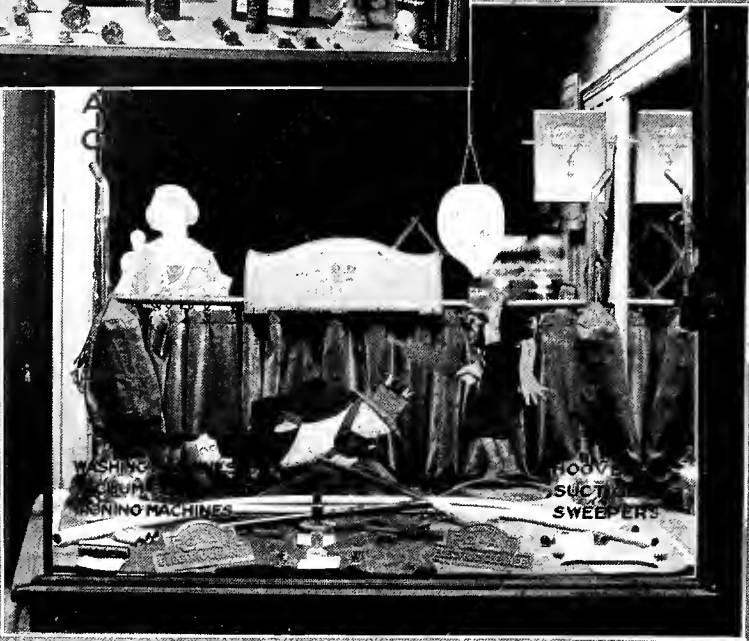
FC—foot control
HC—hand control
A—automatic
VM—various models

MANUFACTURER	TRADE NAME	Shipping Weight (lbs.)	Dimensions (floor space)	Length of Rolls (in.)	Heat for Rolls	Wattage for Rolls	MOTOR		Drive	Control	Speeds	PRICE		WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point At Which Repair Parts May Be Obtained.
							Make	H. P.				East	West of Rockies			
ter Bros. Co. ria, Illinois	"A. B. C."	291 355	33x25	26 44	E G G	1350 2700	Wx Wx	1/6 1/6	B B	FC FC	.... ....	\$145 \$125 \$200 \$165	\$155 \$135 \$210 \$175	W. E. Peters 89 E. 12th St., Portland	A. A. Wilson 612 S. Spring St., Los Angeles E. W. Murray Lighting Co. 313 Riverside Ave., Spokane Richter Sales Co. 310 Stewart St., Seattle The Electric Service Co. 175 Park St., Portland	Western Distributors
ican Ironing Machine Co. W. Adams St., icago, Ill.	"Simplex"	VM	VM	26 to 56	E G Gn	VM	....	....	B	HC	1 and 2	VM	VM	H. R. Basford Co. 180 New Montgomery St., San Francisco	H. R. Basford Co. San Francisco Fobes Supply Co. Portland, Seattle Woodill-Hulse Elec. Co. 111 E. 3rd St., Los Angeles	San Francisco
Appliance Co. 23 W. 30th St., Chicago, Ill.	"Apex"	511 526	26x54	44 48	E G Gn	3200	GE R&M Wx	1/4	G	FC	....	\$160	\$170	A.M. Smith Co., 219 W. 3rd St., Los Angeles	A. M. Smith Co., 219 W. 3rd St., Los Angeles	Los Angeles
Elect. Distribg. Co. 67 E. 152nd St., Cleveland, Ohio	"Rotarex"	325	22x60	46	E G	3000	Own	1/6	B	FC	1	\$152.50 (Cash) \$167.50 (Time)		G. A. Buckley 1405 Walnut St., Kansas City, Mo.	Apex Elec. Distrib. Co. 681 Market St., San Francisco 1437 Welton St., Denver 2011 Broadway, Oakland 1024-11th St., Sacramento 2117 Inyo St., Fresno Illinois Elec. Co. Los Angeles North Coast Elec. Co. Portland and Seattle Electrical Equip. Co. Butte, Montana Intermountain Elec. Co. Salt Lake City	Western Distributors
ett Foundry & Machine Co. ington, N. J.	"Capitol"	470	60x24	46	E G Gn	2700	....	1/6	B	FC	....	\$155	\$170	....	....	Factory
ing Mfg. Co. 5 Euclid Ave., Cleveland, Ohio	"Deming"	250	57x24	46	E G	2400	Ohio	1/8	B	HC	....	\$160 \$117.50	....	....	....	....
ndmaid Co. lland, Mich.	"Hollandmaid"	280	57x24	48	E G	....	GE	1/6	G	FC	....	\$150	\$160	....	....	Factory
on Mfg. Co. rt Wayne, Ind.	"Horton"	320	22x42	30	E G	2000	GE	1/6	B	FC	....	\$140	....	....	A. A. Wilson Los Angeles Salt Lake Hdw Co. Salt Lake City Hexter & Co. Portland Schwabacher Hdw Co. Seattle Holley-Mason Hdw Co. Spokane	Factory
ay Machine Co. icago, Ill.	"Thor Automatic"	565	54x25	44 or 50	E G Gn	1500	GE or Wx	1/6	G	A	2	\$165	\$180	J. W. Ferry 425 Rialto Bldg., San Francisco	Pacific States Elec. Co. San Francisco, Oakland, Seattle, Portland, Los Angeles and Spo- kane	Western Distributors
"1900" Washer Co. inghamton, N. Y.	"1900"	450	27x53	44	E G Gn	2500	R&M	1/10	G	FC	....	\$160	\$175	W. Lee Holmes 71 New Montgomery St., San Francisco	W. Lee Holmes 71 New Montgomery St., San Francisco	San Francisco
ich & Uhlig Co. trot, Mich.	"Ironrite"	410	26x63	46	E G	3500	Dom	1/4	G	FC	....	....	....	....	Poole Electric Co. 1206 Fourth Ave., Seattle	....
i Cabinet & Mac. Co. chester, N. Y.	"Union"	290	56x21	46	G	....	GE	1/8	G	HC	....	\$160	....	....	....	Factory
ails Co. E. Columbus St., t Wayne, Ind.	"Utenco"	310	24x42	24	E G Gn	2750	GE	1/6	G	FC	....	\$175 \$155 \$165	....	Kenneth Wollson 1405 S. Hill St., Los Angeles	Listenwaller & Gough Los Angeles West Coast Sales Co. Oakland	Los Angeles or Oakland
ern Electric Co. w York City	"Western Electric"	198	37x24	28	G	....	WE	1/10	G	FC HC	....	\$125	\$140	Western Electric Co. 680 Folsom St., San Francisco	Western Elec. Co. San Francisco, Los Angeles, Oak- land, Portland, Seattle, Tacoma, Spokane, Denver, and Salt Lake City	All Branch Offices
Zieg Mfg. Co. dericktown, Ohio	"Buckeye"	350	24x48	46	E G Gn	2500	GE	1/6	G	FC	....	\$140	\$150	....	W. E. Dooley & Co. Seattle, Wash.	Seattle

NOTE—In compiling this series of Directories, the Journal of Electricity has made an effort to secure the desired information from all manufacturers of the types of equipment listed that is sold in the West. The Publisher will be glad to receive omissions, changes, and additions for publication in the big FALL BUYING NUMBER of October 15, 1923.



THREE different types of window displays arranged by Seattle dealers are shown on this page. At the top is a window featuring batteries and lamps in the store of the Burchardt & Hauff Electric Company. In the center the Electric Appliance Company has used two characters from a comic strip in a daily newspaper to good advantage to advertise a vacuum cleaner. Below is a miscellaneous display in the windows of the Lushington Electric Company.



Putting Novelty Into the Dealer's Window Display

"Wireless Control" Exhibit Presented by a Southern California Firm Attracts Attention of Large Crowds

In regard to the ideal window display, probably the only agreement that can be reached among authorities is that the display is designed to increase sales of the store that is responsible for the window. On the other points, such as the character of the display, the design, the appeal that is to be made, and many others, it is probable that no definite rule of thumb will ever be made which will be accepted by everyone as the only correct measure that can be followed in decorating all show windows.

Some decorators will continue to hold the opinion that the decorative and impressive display is the one that will attract the most attention while others will maintain that the ridiculous display, in which the merchandise to be advertised is caricatured, is the kind that will cause the passer-by to stop and view the window. Other decorators feel that the appeal to vanity and pride of ownership is the one that should be used to secure the best results and on the other hand, men equally as successful, will announce that the only appeal to be made is that of utility.

In analyzing a series of successful windows it will nearly always be found that the attempt is made to present a display that is somewhat out of the ordinary. Successful decorators will, in the majority of cases, endeavor to break away from the usual practice that they have followed for a previous period and will at intervals present a display of an entirely different character. Thus the element of novelty will be attached to the window, for the public will have become accustomed to a certain character of designs and any change will no doubt attract more attention than could be obtained with even a much more pretentious display of the usual style. A sudden change in character will often be used just prior to a window of customary nature so as to make the customary window carry the element of novelty.

Some decorators will endeavor to

make each separate display one that is novel and of a distinctive type, instead of choosing a set scheme of displays that call for similar treatment over a period of time. In these cases each presentation is designed to speak for itself and to be absolutely independent of any window that has gone before or that is to follow it.

The moving object in the window has been considered one of the most successful "attention-getters" that can be employed in trimming display windows. Any object in action has been found to be much more interesting than the same thing were it in a stationary position. An electric train running around a track inside of a window will attract both children and their parents to the window, when the same train standing on a pedestal in the window would merit only a passing glance.

Action alone does not always produce the novel display that the ambitious window trimmer is anxious to secure. In many cases it is necessary to add another idea to the plan in order to secure the out-of-the-ordinary exhibit. Often a simple idea, but one which calls for the introduction of a surprise, will be the means of drawing crowds to the window and eventually into the store itself. Once the attention is attracted to the display the main purpose has been achieved and if the exhibit is so arranged that the person seeing it is told what the merchandise will do for him or her, the display can rightfully be considered successful.

An excellent example of how large crowds can be attracted to a contractor-dealer's window was presented by the H. L. Miller Company, of Pasadena, Calif. In this display the decorator provided an exhibit which was both a stationary one and one that contained moving objects. When no one was looking at the window the merchandise was not in motion, but when a pedestrian stopped to view the window and pressed the button that was placed in a conspic-

uous place, all devices started to operate immediately.

The window was said to have "wireless control" and to all appearances no connections were made between the button on the front pane of glass and any electrical circuit. All of the appliances displayed in the window were connected to a single circuit and when the connection was made all of the devices came into motion. In arranging for the display which was to be under the "wireless control," the pliability of a sheet of glass was taken into consideration. The button which was placed in the center of the pane, gave window gazers a definite place to press upon the glass. When this spot was pressed, the entire pane moved in a slight distance and by a system of concealed wires the circuit was closed in a relay circuit which in turn actuated a switch that controlled the main circuit. When pressure was removed from the pane of glass the relay circuit was opened and the switch controlling the main circuit snapped to the "Off" position. Thus the appliances were in operation only when some prospective customer stopped to press the button.

When the circuit was closed the electric vacuum cleaner, washing machine and wringer and the sewing machine all started to move and the element of the air heater turned to a reddish color. All of the lamps displayed lighted and the entire exhibit presented a most interesting moving display. At the base of the washing machine there was a card containing the wording, "Push the button" on the window and see the Eden washing and wringing machine run," while a card near the electric bell announced, "Push the button and hear the bell ring. We repair all kinds of electrical appliances."

Five different sizes of Mazda lamps were connected on one block and below each appeared a card stating how many hours each could be operated for 1 cent. The lamps ranged from 10 to 60 watts. A card alongside of this display read, "Take a box of 'em home."

To draw crowds to the display window, the Pasadena contractor-dealer had small arrows painted on the sidewalks for a considerable distance in each direction from the store. These all pointed the way to the "wireless control" window and aided greatly in attracting attention to the exhibit. To carry out the same scheme in the display window, smaller arrows were made upon which appeared the slogan, "Push the Button." These small arrows were pasted on the panes of glass and in every case pointed directly to the button in the center of the front pane. Similar arrows were placed alongside of each piece of electrical merchandise. Two arrows with only the shafts and tails showing, came together immediately below the button, showing that the trail started by the larger arrows on the sidewalk had ended at the button placed above. A large placard with an arrow and the slogan wording in the center appeared just above the button and an oblong card reading "Press Here—Wireless Control!" surrounded the space that was occupied by the button.

A great deal of interest in the window was manifested by the people of Pasadena and at most hours of the day and evening there was a good sized crowd present waiting to press the button for themselves.



When anyone pressed the button seen in the center of the large pane of glass all of the appliances were put in motion. The window is one decorated by the H. L. Miller Company at Pasadena, Calif.



Exterior of the new store and office building of the Pacific Power & Light Company at Walla Walla.

Leading the Way to Better Stores and Business

New Home of Pacific Power & Light Company in Walla Walla
Is Model Which Local Merchants Can Follow

The primary aim of any establishment is to secure better business for itself, but to do this it is often necessary to bring better business to firms that it serves. The entire electrical industry is so situated that its success depends to a large extent upon the good business of other concerns that it serves. This is particularly true as regards commercial lighting.

To develop a demand for commercial installations it is sometimes necessary to first make the desired installations in the seller's own establishment before other concerns are approached. The central station company or contractor-dealer who can show the prospect that the company desiring to install modern lighting in the prospect's store has a complete and modern installation of lighting equipment, is in a much better position than one which can not do this. The salesman that can show that the firm he represents is a firm believer in what he has to sell, can convince the prospect much easier than he could otherwise.

A modern store that is well lighted is an asset to any firm dealing with the public but is particularly so to the electrical concern. If the electrical firms can lead the local merchants in the movement to make stores more modern, business in the electrical industry and the other industries will prosper.

The Pacific Power & Light Company has recently entered into a campaign to have its district offices the most modern and well lighted in the cities that they serve. In these small cities the company's offices and retail electrical stores are housed in the same building and generally resemble a store more than they do an office. In Walla Walla, Wash., the company has recently entered a new building that was especially designed to suit the needs of the local office. The new store is the most modern in the city and has taken the lead

among local concerns in regard to correct lighting installations and general arrangement.

The new home of the Pacific Power & Light Company in Walla Walla is located at Second and Rose Streets and is a two-story structure of buff colored brick. There is a full basement under the building and this together with the first floor is occupied by the company. All of the offices that have to do with the sale of electricity in Walla Walla and the sales room of the company are now housed in the one building. The district manager's office is also located there.

The entrance to the store is flanked by large display windows that are exceptionally well equipped with lighting fixtures. The show windows are lighted

with special iris fixtures, equipped with a varied assortment of color caps permitting the use of a large number of colored lighting effects. Hardwood floors appliances to the attention of the public. form the base of the windows and grey panels with blue borders make up the background and side walls. These panels, in addition to breaking the monotony of an otherwise plain background, set off the small merchandise that is displayed there by forming frames for these appliances. When the windows are decorated pedestals of different heights are used for each device in order that no tiresome straight line will be presented to the eye of the passer-by. A border of sand-colored material outlined in blue is hung across the top of the show windows. This adds a finishing touch to the exterior of the store.

The entrance to the new location is so arranged that demonstrations of appliances may be conducted there. Any of these appliances which are to be shown in operation may be connected to a convenience outlet located at the base of one of the display windows. In this way it is possible to bring washing machines, ironing machines, electric fans, headlight heaters and other

The appliance sales floor occupies the front part of the building, being given a space 35 x 42 ft. Wall cases and floor display cases are placed on one side of the room in a way that makes for the convenience of the customers and sales people. The appliances that are placed in the glass show cases are presented in a most attractive manner. Sufficient space is provided so that it is not necessary for the decorator to crowd appliances together in any one case. The policy of isolation is carried out whenever possible. Small niches in the side walls permit the display of individual appliances which are of particularly pleasing design. The niches and also the bases of all display cases are lined with blue velvet, thus adding considerably to the attractiveness of the display.

The arrangement of the store is particularly adapted to the needs of the local office of the Pacific Power & Light Company in that it provides both office



The bookkeeper's and cashier's departments are separated from the display floor by a lower partition. The cashier occupies the booth visible at the right and serves customers over a low counter.

and store room. The offices where bills are to be paid and other business is to be transacted are located at the rear of the building and are separated from the remainder of the store by a 6-ft. partition of panelling that matches the woodwork that is used on the walls. Because of this partition, customers coming into the store see only the sales force and do not see a number of people working at the desks in the office department.

On the right, as one enters the store, is a ladies' rest room which is fitted with wicker furniture. A public telephone is provided for the use of customers and adds greatly to the convenience of the place. As Walla Walla is situated in the center of a farming country, this service is greatly appreciated by the farmers' wives who visit the city. The company advertises the fact that this rest room and telephone are maintained for the convenience of anyone. Many of the out-of-town visitors make the store their headquarters and arrange to meet there when ready to return to their homes.

In the center of the appliance sales floor a service desk is situated, at which a young lady is always in attendance to answer questions, receive orders for company service and to hear complaints. To make visitors more comfortable, chairs are provided for them so that they may be seated while transacting their business. The young lady at the service desk also answers all telephone calls and transfers them to the proper departments. In this way it is possible to consolidate the two duties.

A table which may be used to display articles which the company wishes to feature at any particular time is placed in the center of the sales floor. To the rear of this table is another larger table, the top of which has been divided into bins. In these bins, small devices such as fuses, two and three-way plugs, iron cords, etc., are placed so that patrons may easily see what they are looking for without making the clerk remove the articles from shelves. Small

tables are provided for displaying such things as sewing machines. Glass shoes are attached to the legs of all tables in order to preserve the linoleum that is on the floor.

Heavy appliances such as washing machines and ranges are placed along the wall on the side opposite the wall display case. Space is provided so that prospects can see these appliances from all sides and convenience outlets enable salesmen to demonstrate just how the connections may be made in the modern home.

To the rear of the partition are located the cashier's department and the bookkeeper's department. A low counter forms the partition on the left side of the store and customers can converse with the cashier across this. Pens, ink and blotters are supplied to make it easy for patrons to pay their bills. Salesmen's desks are placed behind the bookkeeper's department and are hidden by the partition.

A vault that extends from the basement to the ceiling of the first floor is located in the extreme rear of the building. Alongside of this is a rest room for women employees, the manager's private office and another private office that is used by the traveling auditor.

All of the woodwork within the first floor room is finished in silver grey. A wainscoting 6 ft. 6 in. high extends around the walls and above this is plaster that is tinted a light grey. A deep cornice painted silver grey runs around the top of the walls. The ceiling is plastered and is tinted a light cream color. All of the furniture and fixtures are painted grey to match the woodwork. During the day time excellent natural illumination is secured from windows on the Rose Street side of the building. Sand colored curtains are hung on the five windows and on these curtains appear "P. P. & L. Co." in monogram letters. The letters are made of blue velvet. Between the side windows are enlargements of photographs of some of the major developments of the company.

The color scheme that is used was chosen because of the fact that it would be easy on the eyes of the customers and sales people. Eye strain is entirely eliminated and as a result the employees are not as tired at the end of the day as they might otherwise be and are in much better frame of mind to wait upon customers. Completely enclosed fixtures are used to furnish artificial illumination when that is necessary. Bracket lamps are attached to the posts supporting the floor above. Lighting equipment was specified for the store by the Edison Lamp Works. A large electric sign is to be erected on the front of the building.

The traveling inspector's office, the meter department, the lamp room, boiler room and vault are all located in the basement. The vault is the same size as the one on the first floor and is used for storing old records. A large amount of storage space is provided in the main part of the basement. In the corner of the basement an assembly hall 24 x 24 ft. has been made to provide a space that can be used for holding company gatherings. All of the partitions have been plastered and in the parts that are used as offices, a wood floor has been laid over the concrete. An elevator on the Rose Street side of the building is used to carry supplies to and from the storage room. A wide outside stairway leads down to the basement from the rear and the court thus formed admits light to the two offices in the rear of the building.

Reports from Walla Walla state that the central station company's store and office are the most up-to-date and attractive of any in the city. The show windows have attracted considerable attention and the merchants of the city have been made to feel that the power company is a leader in the merchandising field in Walla Walla. The progressive move made by the company has caused considerable comment and has no doubt raised the company in the estimation of all of the citizens of the Washington city. On the night that the official opening was held approximately fifteen hundred people visited the new store.

Booklets to Aid in Increasing Lighting Installations

Two well designed booklets dealing with lighting campaigns have recently been prepared for the use of the electrical industry by the Society for Electrical Development, Inc. The Society has announced that these booklets are particularly adapted to those branches of the industry engaging in lighting and accessories.

The booklets are entitled, "Building Residence Lighting Business," and "Building Store Lighting Business." The first booklet shows how to survey a home and gives various methods for canvassing communities and securing the contract. The booklet dealing with store lighting business treats all phases of any campaign that might be started, in detail, and suggests methods of procedure for both individual and cooperative campaigns. Suggestions as to the proper forms of advertising, publicity and lectures are included in each piece of literature and should prove helpful to anyone desiring to develop either class of business.



Display floor of the Walla Walla office of the Pacific Power & Light Company, showing the floor and wall display cases. Note how the two percolator sets are attractively displayed in wall niches.



Many labor-saving devices were displayed in the kitchen of the electric home displayed at Ogden.

New Methods Used in Displaying Electric Homes

Utah and California Electrical Men Make New Arrangements with Builders Thus Reducing Costs of Displays

Two rather new and extremely successful methods of displaying electric homes were recently exhibited in two different cities of the West. At Ogden, Utah, the electrical industry cooperated with members of the home furnishing industry and aided in displaying a modern home that was shown as part of the Better Homes Campaign that was being conducted in the city. In Richmond, Calif., a home that was built by the Miner Construction Company for the contractor, was opened to visitors as a model electric home.

In each case the cost to the electrical industry was very low and the results that were obtained were extremely good considering the expense. The financing of each of the two homes was done by the builders and furnishing of the homes was taken care of by local home furnishers.

The Ogden home was built and equipped by local firms and invitations to visit the home were sent out to all of the citizens of Ogden. To further interest in the display, meetings of women's clubs and other organizations were held in the home during the week that the home was open. Reports from the electrical industry in the Utah city indicate that the home was entirely up to the standard of previous exhibits. Due to the fact that the exhibit was presented as part of the Better Homes Campaign, the public viewed the home from a more

general direction and did not regard it as wholly an electrical enterprise. The electrical message was presented in a most effective way and visitors were shown that electrification of the home is necessary in order to make it completely modern.

The home was opened on June 4 and remained open to visitors for only one week, as that was the duration of the Better Homes Campaign. There are six rooms in the home and each of these, during the exhibition, was supplied with a complete list of electrical appliances. Guides and demonstrators were present to conduct visitors through the home and explained the function of the various devices that were displayed. The convenience of the electrical appliances was stressed by these men.

One of the features of the home which attracted considerable attention was a full basement in which there are a small dance floor, card room and a large storage space. The laundry room is also located in the basement and is completely electrified.

It was not the intention of the builders of the Richmond home to place it open for inspection, but it was learned that public interest was high in regard to electric homes and the builder consented to allow the people of the city to visit it. Thus the home was not built for the purpose of exhibiting and in addition was constructed at a moderate cost.

These features suited the electrical industry admirably as it was able to show that an electrical home did not necessarily have to be an expensive one.

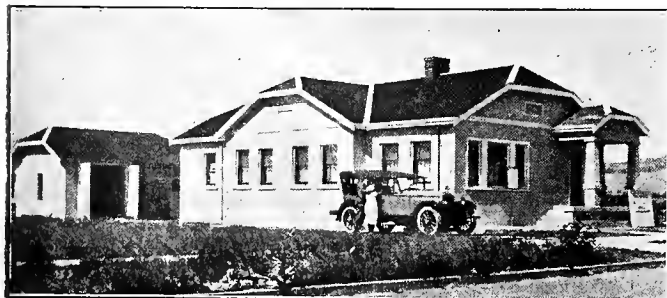
Despite the fact that little publicity was given to the display, it was estimated that over four thousand people visited the home while it was open. Cooperation between a Richmond electrical contractor-dealer and the Western States Gas & Electric Company, the central station company serving the city, secured the small amount of advertising that was run in the local papers.

An innovation presented in the Richmond home was the placing of price tags on all of the appliances displayed there. In addition to this, cards stated what it would cost to operate each of the devices. Considerable comment was caused by the comparative cheapness of operating the electrical appliances. It was possible to place price cards on the merchandise that was shown, because of the fact that only one electrical contractor-dealer displayed equipment in the home.

The Richmond home, which is completely electrified, is a six-room structure and all exterior walls are of double concrete construction. This method of insulating the house was found to be particularly satisfactory as the home is heated entirely by electricity. Two hundred and twenty-volt electrical radiators are used to heat the living and dining rooms and radiant heaters, one of which is placed in the fire-place, serve to supplement the radiators. Outlets are located in each of the three bed rooms which permit the occupants of the house to connect the radiators there when they are needed. The method of heating has been found to be entirely satisfactory and, due to the way that the heat is held in the house, should be very economical.

An automatic range, an automatic water heater, and an electric dishwasher were installed in the kitchen of the home while a number of smaller appliances were displayed in the breakfast nook of the house. Particular attention was paid to the lighting of the kitchen.

The home displayed in Ogden and the one opened to the public in Richmond attracted considerable attention in the two cities. It is the opinion of the men who were interested in the display, that the electrical message has been carried to a number of people who might not otherwise have gotten it were it not for the new methods of displaying the two homes. No definite figures on the costs of displaying either home are available, but estimates show that a remarkably low expense was entailed in each case, while results show that the electrical industry did not suffer because of the low cost.



A contractor-dealer, the power company serving the city, and the builder cooperated in displaying this home at Richmond, Calif.



Exterior of the electric home displayed at Ogden, Utah, in connection with the Better Homes Campaign recently conducted in that city.

Make a Good Appearance in the Prospect's Office

Courteous Treatment of the Customer Aids Greatly in Getting
His Name Signed on the Merchandise Order

By F. N. COOLEY,

Sales Manager, Western Electric Company, Seattle, Wash.

Much has been said on this very important subject, as it relates to the success in business life, but a few simple rules, if conscientiously followed, will give a corporation representative an enviable handicap in the race for business that will reflect itself in higher volume of sales and mark the man who practices these rules as one who is not a beginner in business life but one who realizes the value of courtesy and patient understanding of the rights of his business associates.

Study over the following suggestions; follow them, and watch results.

Never intrude, or invite yourself into a business man's private office if the door is closed, whether or not you know he is alone. Seek an announcement through an attendant, or, if invited over the telephone immediately previous, do not fail to announce your arrival by knocking on the door, giving your customer an opportunity to invite you in. Remove your hat, and if a hat rack is not available, hold it in your hand or lap. Do not lay it on your prospect's desk. It may be damp or dusty.

Never glance at papers on your customer's desk. Look him in the eye when he is looking at you and out the window if you please, when your glance does not meet his. Keep your feet on the floor, not on his radiator, desk or other office furniture. Do not place a catalog on your customer's desk unless you are sure it has a smooth, soft covering, without exposed metal parts to mar or scratch his furniture. Always look where you are stepping and do not trip over his telephone extension cord, waste basket or cuspidor.

It is a common business practice to give way to a telephone call. Allow your customer, if you are in his office, to answer it promptly. If he is in your office, answer a telephone call promptly, pardoning yourself for the interruption.

In calling on a customer or in making any business call, make sure you do not crowd yourself in before anyone else who may be waiting before you. If you find that inadvertently this has happened and you have gained admittance before another person, you should not only excuse yourself to the offended caller, but the person called upon as well.

Never rush a business conversation, thinking you are doing your customer a favor by saving his time; know what you are going to say before you enter his office; get your story over thoroughly but take your time. If you sense a feeling that the party called upon is too busy to give you sufficient time, excuse yourself and try to secure an appointment at a time when he can give you the deserved attention.

Never start telling questionable stories; let him guide the conversation in such channels if he wants to, but do not encourage such atmosphere long. Do not let the conversation lag; when it does, you are through and your customer is through with you. Always tell the truth. A man cannot lie unless he knows the truth, so don't guess.

Take no visible notice of such placards as "Be Brief," "Do Not Park Here," etc. If you are a well trained business man they are not posted for your benefit.

If the door of your prospect's office was open before you entered, leave it open when retiring; if it was closed, close it upon leaving, and if you inadvertently slam it, re-open it and pardon your carelessness.

I do not consider it good business etiquette to offer a customer or prospect a cigar until you have met him twice or more; nor to lunch or other entertainment until you have met him three or more times. Never offer entertainment in any shape immediately preceding the closing of a business transaction. Wait until after it is closed and then do not let the outcome influence your offering of a cigar or luncheon.

Refrain as far as possible from talking business when entertaining a customer or prospect at luncheon, especially during the meal. Do not let the conversation drag while entertaining a customer at luncheon; make him feel comfortable by guiding the conversation along lines most pleasant to him, not yourself.

Refrain as far as possible from entering a game of chance with a customer. You will lose in the end, even if you win the game. Do not attempt to let your customer win any game when talent is exercised. If you are found out, you go down in his estimation.

Always keep a business appointment. Nothing is more important. If you are unavoidably delayed, patronize the telephone company, if it costs a nickel or a dollar.

Do not be afraid to remove your hat. In doubt, remove it.

Keep your personal appearance up to or above standard.

Practice the Golden Rule in business.

Making a Check on the Value of the Local Electric Home

Approximately a year ago the Spokane Electrical Service League of Spokane, Wash., was responsible for the displaying of an electric home in that city. People of Spokane, to the number of about nineteen thousand, visited the exhibit and were shown how the modern home is equipped with electrical appliances and outlets for properly lighting and operating the home. A great deal of interest was displayed in the city and it was thought at the time that the exhibit was one that would further the electrical idea in Spokane.

During the past two months, M. E. Collins, a city salesman of the Washington Water Power Company, has been making a canvass of the homes in order to place electric ranges, water heaters and other appliances in as many of these residences as possible. According to Mr. Collins, results from the educational work conducted last summer are evident in a great majority of the homes in Spokane. In one group of eighteen houses, costing five thousand

dollars or more apiece and with a total cost of approximately one hundred and eighteen thousand dollars, it was found that one or more of the ideas as to proper electrical installations, presented in the electric home, were incorporated in each of these homes. Mr. Collins has reported that he has noted similar results in less costly homes and is convinced that in Spokane the electric home produced results.

ARE YOU RIDING OR PULLING?

By JOE OSIER

Are you riding in your Association boat or are you pulling a lousy oar? Are you dead weight or live weight? Are you saying "Let's go" or "Go ahead"? Are you sitting pretty or in there working?

These leading questions are put for a purpose because it is my intention, in this column, to fling to the fishes the carcasses of Men of the Electrical Industry who—

Gladly accept the benefits of Association work at the same time refusing to—

Do a tap or pay a cent—therefore—In case you prefer not to be flung, get busy, grab an oar, pull, pull, pull for the shore where Association members foregather when the race is done—

Where the wavelets lisp lovingly on the shimmering, silvery strands and—

Where every man, after shedding his troubles, is hailed as friend and brother.

I know that I will not be challenged when I say that too many men of the industry, today, are permitting—

"George to do it."

Out of the fold, yet they glean the gravy which is the portion of the lads who are doing the lifting.

They toil not neither do they spin, and Solomon, in all his glory was—

A ragmuffin as compared to one of these—but—

The time has come when these Birds should be stood up and counted, then—

Exited from the nest.

One hundred per cent organizations should be the rule and not the exception. Every man in the game should be on an Association roster with—

His shoulder to the well known wheel and his dues paid in advance and—

He should work and sweat and grunt and do everything in his power to prosper his own particular clan.

When this comes to pass—when every Man of the Trade is in line and in step—

Milk and honey will be the steady diet of all; cash registers will be ringing right merrily throughout the length and breadth of the land and—

The fatted calf, converted into savory veal, will be in evidence in every—

Ham Hamlet and Sinful City in the Universe.

It is true—(may I be spared for saying it)—too many men have been riding in the Association boat rowed by brave and strong and faithful members but—

"The time has come"—again quoting the walrus—

When every man must take an oar and pull until the landscape dims before the eyes and victory perches upon the banners and—

Ratisbon is won.

INDUSTRIAL NEWS



Laguna Bell Substation Placed in Service Aug. 2

The new Laguna Bell 220,000-volt receiving substation of the Southern California Edison Company was placed in active service Aug. 2. The station is located a short distance southwest of Los Angeles in the center of the company's industrial load. All equipment is located out of doors on a plot of ground 350 ft. wide and 600 ft. long, with the exception of a 30,000-kva. synchronous condenser and the switchboards for operation of the station. Both of the Big Creek transmission lines, which were placed in operation at 220,000 volts May 6, 1923, have been extended from the original terminus at Eagle Rock substation to Laguna Bell, a distance of 30 miles. Two banks of 220,000/60,000-volt transformers, each having a bank capacity of 60,000 kva., feed into a 60,000-volt bus, from which there are thirteen 60,000-volt outgoing feeders.

The Laguna Bell substation is unique because it is the first substation designed for 220,000-volt operation to be placed in service at that voltage, and because of the unusual type of 220,000-volt bus construction. The bus consists of 4-in. iron pipe mounted on pillar insulator posts set on concrete pedestals with no overhead steel structure. The Laguna Bell station was completed at a cost of approximately a million dollars and will serve as an important distribution point for power from the Big Creek plants for the rapidly growing industrial load in the vicinity of Los Angeles.

Amended Regulations Issued by Federal Power Board

At a recent meeting of the Federal Power Commission that body approved the issuance of amended regulations relating to applications for preliminary permits and for licenses, the purpose of such amendments being to correct defects in the regulations which have been brought to light by experience in administering the Federal Water Power Act. The amendments approved are not a departure in principle from those heretofore in effect, but it is expected they will result in the submission by applicants of more complete information relating to water power developments than has heretofore been the case, and that in the future less time will be required to consider and act upon applications than has been required in the past.

At the same meeting an order was adopted authorizing the executive secretary, without formal action of the Commission in each case, to approve minor changes in maps, plans, and

specifications of licensed projects and to approve or require such substantial alterations or additions to the project works as may be necessary to obtain substantial conformity with the approved plans, and a condensed classification of accounts, for use of licensees who do not furnish a public service, such as industrial concerns, mining and lumber companies, etc., was also approved and ordered promulgated.

Public Ownership Factions Will Attempt Combination

At a meeting of the Public Ownership League of America held in Spokane, Wash., Aug. 3, an attempt was started to combine the several political forces now campaigning for the public development of Washington's hydroelectric resources. Senator Clarence C. Dill was the principal speaker at the meeting.

The plan put forward is to merge the Erickson-Kennedy, Mark Reed-Pliny Allen, Brown Southard and Bone factions. It is planned to form a consolidated public ownership political organization, draft a bill and attempt to introduce it before the Washington legislature early next spring.

The Public Ownership League of Seattle is planning to send J. D. Ross, Seattle superintendent of lighting, and Oliver T. Erickson, public ownership leader of the Seattle city council, to the convention of the Public Ownership League of America to be held in Toronto, Ont. The convention will be held Sept. 10-13.

Washington Water Power Co. to Repair Headgates

The Washington Water Power Company has recently authorized the expenditure of approximately fourteen thousand dollars for the reconstruction and repair of the headgate house of the Monroe Street power house of the company in Spokane, Wash. The Monroe Street plant is the first one built and operated by the Spokane company.

Five steel penstocks lead from the headgate house to the turbines located below the Monroe Street Bridge. The first two penstocks installed were placed in their present position in 1890 when the first plant was built and are 7 ft. in diameter. The other three penstocks of 10-ft. diameter, were installed in 1902.

Each of the five chambers will be repaired separately and in order to do the work it will be necessary to construct a cofferdam in the Spokane River in front of the headgate house. The repair work will be done by a construction force directed by the engineering department of the company.

Construction Forces Active on Soda Point Development

Construction work on the Soda Point, Idaho, development of the Utah Power & Light Company, is progressing rapidly. Crews have been at work on the project for the last five weeks and the work of clearing the river to bed rock is being done at a rapid rate. The project will involve an expenditure of approximately three million dollars.

The dam that is to be erected will be located at the northernmost point on the Bear River, 6 miles west of Soda Springs. The power house will have a generating capacity of nearly twenty thousand horsepower. When this installation is completed, the power company will have five plants utilizing the water power of the Bear River. The large lake to be formed by the dam near Soda Point will be a secondary storage reservoir for the water supply stored in Bear Lake.

The dam that is to be erected will be of the concrete gravity type and will be 80 ft. in height above the river surface. Two vertical 9,400-hp. units will be installed in the power house.

Merced District Will Build Dam on Day Labor Plan

The Merced (Calif.) Irrigation District has announced that it will build its Exchequer Dam on the day labor plan. Several bids for doing the work were received and the directors of the district decided that the work could be done cheaper by the day labor plan.

If the dam is completed before the Pacoima Dam in the mountains near Los Angeles, it will be the highest dam in the world. The dam will be of the constant angle arch type and was designed by Lars Jorgensen, San Francisco engineer. The dam will be 320 ft. high, the arch span at the top being 840 ft. The thickness at the crest will be 12 ft. while it will be 128 ft. thick at the base. Two hundred and eighty thousand acre-feet of water will be stored behind the dam. This volume of water together with the natural flow of the Merced River will supply water to irrigate 250,000 acres of land in Merced and Stanislaus Counties.

The site of the Exchequer Dam is on the Merced River in Mariposa County, seven miles from the town of Merced Falls. The project is primarily for irrigation purposes, but embraces the construction of a power house with a capacity of 25,000 kw. The district has entered into a 20-year contract to wholesale practically all of the power to the San Joaquin Light & Power Corporation.

Extensive Improvements Will Be Made by Denver Utility

An improvement program calling for an expenditure of over five million dollars is now under way by the Denver Gas & Electric Light Company and other subsidiaries of Henry L. Doherty & Company operating in Colorado. A large portion of this amount covers the initial installation of the new 20,000-kw. generating plant near Valmont, Colo., a project announced several months ago and on which work is actively being done.

It is believed that with the recent incorporation of the Public Service Company of Colorado by Rodney J. Bardwell, one of the directors of the Denver Gas & Electric Light Company, and the associates of his law firm, Roy C. Hecox and Edgar McComb, a new company has been designated to participate in the affairs of the project.

The finished station will include additional equipment to double the primary generating capacity. With the required transmission system, the total cost is estimated to be close to twelve million dollars. This amount, however, does not include the expenditures which are now being made by the Denver Gas & Electric Light Company for bettering distribution service within the city of Denver.

Already three automatic rural substations have been cut in to accommodate the companies serving the towns of Golden, Arvada, Littleton, Englewood and Ft. Logan, Colo.

Another automatic substation, to be known as the "North Sub" but which will be located at Thirty-ninth and Columbine Streets in east Denver, is expected to be in operation by Jan. 1, according to D. C. McClure, electrical superintendent of the company, under whose direction the various improvements are being made. When completed it will cost about \$100,000 and will complete about one-half of the industrial belt distribution system. Later it is understood another substation will be erected to complete the system.

Enlargement of the original Denver power house, now known as the "Barker Sub" and located at Twenty-first and Wewatta Streets, is now being done at a cost in excess of \$100,000. The work was necessitated by load growth in the business section of the city.

A similar amount is being spent on new transmission lines within the city. The unprecedented building program in Denver during the past year, especially in outlying residence sections, has necessitated numerous extensions and to serve those districts adequately, the company has been engaged most of the summer in the installation of new poles.

In connection with the Denver transmission system, the plans for bringing in the lines from the new Lakeside plant, are being developed. Steel core aluminum cables mounted on steel towers will be used for transmission lines which will operate at 90,000 volts as far as the Denver terminal substation, where the voltage will be reduced to 22,000 volts for distribution to the other substations. The outdoor terminal substation will be located at the West Denver generating plant which likely will be shut down for all other purposes after the new plant north of the city is in operation.

V. L. Board, the general superintendent, has also an extensive program of

improvements for the gas department, due to the increased demand for gas for industrial purposes and house heating. A new holder, the biggest in the outlying residential sections, has just been completed and many new pipe lines will be laid before winter.

Increased business has also necessitated additional office space for the company in its own building to the extent of almost 25 per cent. With the exception of a few offices on the third floor of the building, the company has been using the basement, main floor, and the second floor.

Ogden Automobile Painters Use Electric Japanning Oven

One of the most modern electrical installations in Ogden, Utah, is an electric japanning oven recently installed by the McLaughlin-Storrey Company, automobile painters, of Ogden. The oven is used for baking enamel on automobile fenders, hoods, disc wheels and trimmings.

The oven is 4 ft. by 5 ft. by 7 ft. and a complete set of fenders, hood and trimmings for a large car can be baked at one time. It contains five 3-kw., 750 degree heaters and can be brought up to 400 deg. in one hour. Enamel jobs baked in this oven are guaranteed for a period of three years, which gives one an idea of the lasting quality of the work.

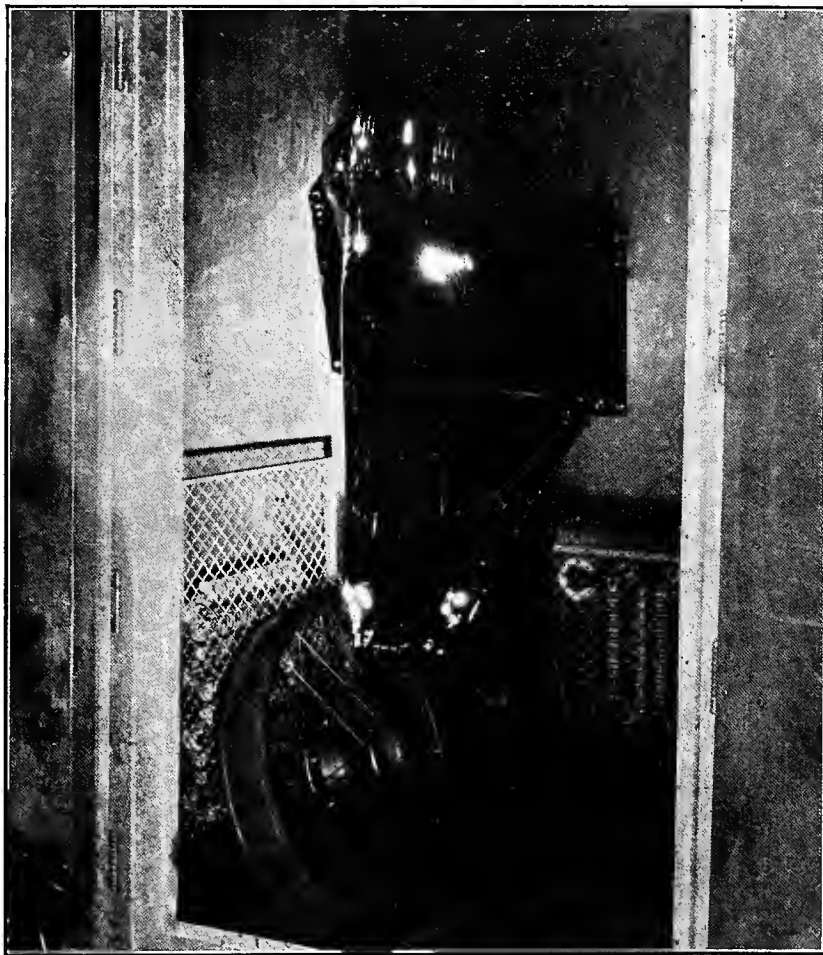
The oven was manufactured locally, of heavy sheet iron lined with 2½ in. asbestos. The connected load of this oven is about 15 kw.

Plan Erection of Hydroelectric Plant at Klamath Falls

As a result of the deeding of the Ankenny and Keno canals to The California Oregon Power Company, by the United States Reclamation Service, the company plans to erect at a site near Klamath Falls, Ore., a power house which will have a capacity of 3,000 kw. It is estimated that the cost of the plant will be approximately five hundred thousand dollars.

When the plant is completed, part of the load at Klamath Falls will be carried by the local plant, but the transmission line to the Copco power house of the company will be maintained to provide absolutely reliable service. Sawmills in the vicinity of Klamath Falls are the principal users of electricity in that territory. There are about thirty of these mills in close proximity to the city and some of these are completely electrified. At the present time all power is transmitted from the Copco power house.

The disposal of the Ankenny and Keno canals leading from Link River, has been considered by the Reclamation Service for some time and during the last four years there has been considerable litigation as to the ownership of the canals and also as to the price that a purchaser must pay to secure them. About a year ago an appraisal committee valued the property at about one hundred and twenty thousand dollars. The California Oregon Power Company's bid for the canals was slightly in excess of this valuation.



Interior of electric japanning oven built for an Ogden, Utah, automobile painting company.

Opposing Resolutions Passed on Municipal Power Sale

H. W. Crozier, of Sanderson & Porter, in reporting for the technical committee of the San Francisco Electrical Development League, at a recent meeting, read a resolution which stated that the League favored the wholesaling of electric power generated as a byproduct by the City of San Francisco at its O'Shaughnessy Dam. The resolution, which is reprinted on another page of this issue, states that it is the opinion of the San Francisco Electrical Development League that it would be to the best interests of the city, if the city would not retail this power but would wholesale it to some central station company at the power house. The resolution which was presented was adopted unanimously by the League and copies were sent to the mayor, all of the city supervisors, the city engineer and other interested parties.

The recommendation made by the League committee is similar to the one made by M. M. O'Shaughnessy, city engineer of San Francisco.

At a meeting of the San Francisco Board of Supervisors on the following day, that body by an unanimous vote went on record as favoring the establishment of a municipally owned and operated power system in the city for the distribution of power generated in connection with the Hetch Hetchy water project. That action was followed by the passing of a resolution calling on the city engineer for data concerning the price and terms upon which the distribution systems of the Pacific Gas & Electric Company and the Great Western Power Company could be acquired by the city.

The information desired from the city engineer is expected to be presented in about a month. It is understood that no further action will be taken by the supervisors until this report has been made.

"Twenty Year Club" Formed by Portland Utility Men

A new organization, known as the "Twenty Year Club," was recently formed by those employees of the Portland Light & Power Company who have served twenty years or more in the employ of the company or its predecessors. Although the role is not complete it now contains nearly 150 names and includes the president, Franklin T. Griffith, F. I. Fuller, vice-president in charge of railways, and O. B. Coldwell, the other vice-president in charge of light and power. C. P. Osborne, superintendent of light and power; Fred Cooper, superintendent of railways and many other ranks.

The purpose of the club, as defined by the recently adopted by-laws, is primarily a social one. Meetings will be held at regular intervals and at least one banquet will be given each year. However, it is expected that the club will do its share toward maintaining company morale and influencing favorable public comment.

The officers of the "Twenty Year Club" are R. H. Townsend, president; Frederick V. Holman, honorary president; Fred Cooper, first vice-president; C. P. Osborne, second vice-president; J. L. Day, secretary and treasurer; T. W. Sullivan, trustee.

Mr. Holman, honorary president, holds his position by virtue of his having been longest in the employ of the company or with its predecessor. Mr. Holman has served continuously since April, 1884, and is still in active service as company counsel. Long before the Willamette Falls Electric Company installed the first hydroelectric unit in Oregon this man was engaged in the electrical business.

The club president has appointed committees to look into the matter of a suitable emblem and pension.

Colorado Men Plan Development of Upper Yampa River

A proposal to erect the largest reservoir in the state of Colorado and a power house with an initial capacity of 12,000 hp. has recently been made public by Donald L. and Walter Carver, proprietors of the Steamboat Service Company. The power house is to be erected on the upper Yampa River, about fifteen miles south of Steamboat Springs and the dam will be located at the upper end of the canyon above Pleasant Valley, according to the announcement.

Plans call for a dam 200 ft. high which will back the water up in the river for a distance of five and one-half miles. The reservoir is to be designed to impound 6,500,000,000 ft. of water. Water will be conveyed to the power house through a tunnel.

A permit for the development has been applied for from the Federal Power Commission and a filing on the site has been made in the office of the Colorado secretary of state. Detailed surveys of the site have been made and the land included in the project has been placed under option. The assurance that the Moffat Tunnel would be bored is said to have considerable bearing upon the decision to develop the power site.

Branch Line in Southern Idaho Granted Federal Permit

A permit for the construction of a branch line of the Oregon Short Line Railway between Rogerson, Idaho, near Twin Falls, and Wells, Nev., has been issued to that railroad by the Interstate Commerce Commission. The branch line when constructed will be 97 miles long.

In applying for the permit, the Oregon Short Line, a part of the Union Pacific System, stated that if the permit were granted it would start construction about Sept. 1 and that the road would be in operation by the end of 1924. The total cost of the work involved is \$5,094,000.

The road is to be built primarily to give the territory in southern Idaho a more direct outlet to San Francisco, as direct connection with the Pacific Coast city can be made from Wells. The chambers of commerce of Twin Falls and Wells have been active for some time in an effort to secure the connection of the two cities.

An electrically cooked dinner was served to the members of the Synchronous Club of Los Angeles, Calif., on the evening of Aug. 14. A range furnished by the Westinghouse Electric & Manufacturing Company was used in preparing the meal. Following the dinner an election of officers was held.

Successful Year Forecasted for Denver Organization

With over 90 per cent of its budget for the present fiscal year underwritten in the first thirty days, the Electrical Cooperative League of Denver, Colo., has started on a year that promises to be even more productive than the first two years, according to reports from that city. The program as outlined will include a permanent lighting exhibit, an extensive advertising campaign, at least two electric homes, and a continuation of the field work which was started last November.

The contractor-dealers of Denver recently elected their representatives on the Advisory Board of the organization which with the designations previously made by the other branches of the industry completes the group which will be responsible for the various undertakings.

The membership of the Board for the year ending June 30, 1924, is:

Jobbers

E. V. Beck, Central Electric Supply Company.
J. J. Cooper, Mountain Electric Company.
A. C. Cornell, Western Electric Company.
A. M. Poindexter, Poindexter Supply Company.

Manufacturers

W. E. Barrett, Westinghouse Electric & Manufacturing Company.
R. W. Elliott, Albert Sechrist Manufacturing Company.
H. W. Fishburne, B. K. Sweeney Electric Company.
H. D. Randall, General Electric Company.

Public Utilities

O. L. Mackell, R. G. Gentry, Clarence Keeler, and F. F. McCammon, of the Denver Gas & Electric Light Company.
Dean D. Clark, Mountain States Telephone & Telegraph Company.

Contractor-Dealers

E. C. Headrick, E. A. Scott, C. N. Shannon, and D. D. Sturgeon.

In this group, officers have been elected as follows: O. L. Mackell, chairman; D. D. Sturgeon, vice-chairman; R. W. Elliott, secretary; and Dean D. Clark, treasurer.

The Advisory Board has gone on record as favoring a half holiday for Aug. 16 when the third annual picnic of the League will be held at Elitch's Gardens. E. V. Beck, C. E. Addie, R. W. Elliott, W. E. Barrett, E. A. Scott and E. E. Stettler are the committee in charge of that event.

Cement Company Erecting Dam at Sullivan Lake, Wash.

The Leigh Portland Cement Company is to spend approximately thirty-five thousand dollars in erecting a dam at Sullivan Lake, which is eight miles above the company's plant at Metaline, Wash. The Metaline plant is in the vicinity of Spokane. According to W. G. Perrow, manager of the plant, the dam is being erected for the purpose of securing water power to run the plant at Metaline.

The new dam will be of concrete and will replace an old wooden dam. The company has a force of 85 men working on the dam.

The Dixie Power Company, of St. George, Utah, has extended its lines to the iron mines near Cedar City, and from thence to Iron Springs, a distance of fifteen miles. Electricity will be used to run the drills and other apparatus at the mines, and it will also be used to pump water for the camp at the mines.

Applications for Oregon Sites Cover Nine Projects

Through its attorney, A. A. Smith, of Baker, Ore., the Eastern Oregon Light & Power Company recently filed a request with the state engineer of Oregon for two permits to develop 6,200 hp. from the two forks of the Wallowa River, above Wallowa Lake. The company has its head offices in Baker and serves eastern Oregon in the vicinity of Baker.

H. H. Huson of Huson & Fortiner, engineers of Portland, has made four water power filings. The filings cover projects on waters in Marion and Linn Counties. One of the filings relates to the proposed construction of the Santiam Reservoir for the storage of 1,500 acre-feet of water and another proposes the construction of what would be known as Marion Lake Reservoir to store 7,500 acre-feet.

The Oregon state engineer also received a request from Albert Anderson of Grants Pass, to construct the Anderson Reservoir on the South Fork of the Coquille River. It is the proposal to store 18,500 acre-feet of water and to develop 13,201 hp. F. K. Masters of Portland filed an application for a permit to develop 22,500 hp. by taking 300 sec.-ft. from Fish Lake, Clear Lake, Lava Lake, Lost Lake and McKenzie River.

It is rumored that all of the applications, except that of the Eastern Oregon Light & Power Company, are for speculative purposes.

Los Angeles Council Refuses to Grant Initial Expenses

The Los Angeles Public Service Commission recently was defeated for the fifth time in its efforts to secure blanket authority from the city council to spend \$25,000 for the preliminary expenses incidental to acquiring the distribution system of the Los Angeles Gas & Electric Corporation in that city. The electrical properties of the company which the Commission wishes to purchase are valued at \$17,000,000.

The city council voted to refer the matter to the council sitting as a Committee of the Whole. The committee meets only upon the call of the president and the date of the next meeting is uncertain.

In commenting upon the application of the Public Service Commission, Councilman Mushet, who has consistently opposed the ordinance, stated that the people of Los Angeles would rather have the \$17,000,000 spent on needed improvements to the present system of the city. He stated that the Power Bureau should complete its power development on the aqueduct before taking on any new business.

Engineers of Utah Are Urged to Form United Society

Mobilization of the engineering talent of Utah, both for the development of the resources of the state and the good of the profession, is the object of a program outlined by R. K. Brown, chief engineer of the Salt Lake & Utah Railroad, in a talk at the all engineers' weekly luncheon recently.

Mr. Brown, who is a director of the Engineering Council of Utah, said that after a year's preparation the scheme to form a general active engineering

body is now ready to be voted on by the various societies. It is proposed to have a permanent headquarters, a paid secretary, and to publish a technical engineering journal.

With the extension of the mechanical engineers, who are now organizing, more than 800 engineers of Utah are organized into one of the following societies: the Utah Society of Engineers, the American Society of Civil Engineers, the American Institute of Electrical Engineers, the American Association of Engineers, the American Institute of Architects and the American Institute of Mining and Metallurgical Engineers.

Under the present plan the engineering council would co-ordinate the various branches of engineering and promote engineering projects. The engineer at present is merely a hired man, Mr. Brown pointed out. Under the proposed system of organization he would be a professional man working out projects of his own under the auspices of the association. He intimated that one-half of the money necessary to maintain such an organization for one year would be subscribed by an individual engineer of Salt Lake City, and that definite organization awaited only the vote of the individual societies.

Southern Sierras Power Company to Erect New Plant

Plans for starting of work on the erection of a \$500,000 hydroelectric generating plant at Mill Creek above Redlands, Calif., have recently been announced by the Southern Sierras Power Company. Power from the new plant will be turned into the main transmission lines of the company and for building the new plant, energy will be taken from other plants now operated by the company. The plant at Mill Creek will be designed to develop 3,000 hp.

Actual construction of the Mill Creek plant can not be started until a line extending from the main transmission line to the power house site is completed. It is reported that work has been started on this connecting line and that it will be ready early next spring.

A three-day excursion to the Spaulding-Drum developments of the Pacific Gas & Electric Company, will be undertaken by the editors of northern California Aug. 24-26. The newspaper men will be the guests of the utility company and will be given an opportunity to investigate all of the company's developments in the vicinity of Lake Spaulding. The trip was originally planned for June 30 to July 2 but the death of John A. Britton, on June 29, caused the postponement of the trip.

The Pacific Gas & Electric Company has announced that it does not wish to dispose of its distribution system in Sacramento, Calif., and hence does not care to place any valuation upon the property. The newly formed Sacramento Municipal Utility District requested the Pacific Gas & Electric Company and the Great Western Power Company to make a valuation of their respective systems with the intention of purchasing both, should the citizens vote the necessary funds at the November election. No reply has yet been made by the Great Western Power Company.

P.C.E.A. Head Names Committee Chairmen for 1923-24

Committee chairmen for the year 1923-24 of the Pacific Coast Electrical Association have been appointed by L. M. Klauber, president of the organization. The members of the committees have not been named yet.

The committee chairmen that have been named are as follows: Public Policy Committee, R. H. Ballard, Southern California Edison Company, Los Angeles; Public Relations Committee, R. E. Fisher, Pacific Gas & Electric Company, San Francisco; Publicity Committee, Al C. Joy, San Joaquin Light & Power Corporation, Fresno; Technical Committee, H. L. Doolittle, Southern California Edison Company, Pasadena; Commercial Committee, A. E. Holloway, San Diego Consolidated Gas & Electric Company, San Diego; Accounting Committee, A. B. Carpenter, San Joaquin Light & Power Corporation, Fresno; Purchasing Committee, C. A. Kelley, Southern Sierras Power Company, Riverside.

Reclamation Service Engineers Studying Utah Rivers

F. E. Weymouth, chief engineer, and James Munn, construction engineer with the United States Reclamation Service, were in Salt Lake City, Utah, the latter part of July conferring with W. M. Green, in charge of investigations for the service in Utah.

Under Mr. Green's general direction there are four parties now at work on investigation of projects which, if found feasible and put through, will affect Utah lands. On the Great Salt Lake Basin project W. L. Drager is at Brigham City investigating the Bear River supply and possibilities of its use, W. M. Blackmer and E. O. Larson are in Cache County, studying the Bear River and its tributaries, particularly the Logan River project, and R. R. Robinson, investigating the Dead Man's bench project in Utah is at Maybell, Colo., investigating the possibility of obtaining Yampa River water for use in the lower White River basin.

An application for a preliminary permit to construct four developments on the North Umpqua River, in Douglas County, Oregon, has been made to the Federal Power Commission by The California Oregon Power Company. The sites of the projects are in the vicinity of the city of Roseburg. It is estimated that about twenty thousand horsepower will be made available if the development is carried out.

Water from the Hetch Hetchy development of the City of San Francisco can be made available to the city within four years if the necessary funds are provided, according to M. M. O'Shaughnessy, city engineer of San Francisco. Between thirty and thirty-two million dollars will be needed to complete the aqueduct from Moccasin Creek to Irvington, according to Mr. O'Shaughnessy.

Purchasing agents of the leading western cities will hold a convention in San Francisco, Sept. 27-30. General topics relating to the purchasing of supplies and materials in large quantities will be discussed at the convention.

Lumber Company Uses New Style Electric Gantry Crane

The Los Angeles Lumber Products Company is now testing out a considerable amount of electrically operated equipment preparatory to engaging in an extensive program of production at Los Angeles harbor. One of the largest devices installed is a 6-ton gantry crane which is electrically operated.

This crane, operating along a runway through the center of the mill's stacking yard, replaces the method of distribution employed in old type mills. The crane does away with the horse-drawn

Substation Built by Bay Point Light & Power Company

The Bay Point Light & Power Company, operating in Contra Costa County, California, has just completed a new substation in the town of Bay Point. The new substation is one of concrete and houses three 150-kva. transformers and large slate meter panels. The transformers were furnished by the General Electric Company and the Westinghouse Electric & Manufacturing Company supplied the meter panels.

The new equipment was installed because of the increasing demand for

Los Angeles Electric Club Will Visit in San Diego

San Diego, Calif., will be the pleasure goal of the Los Angeles Electric Club, on Saturday, Aug. 25, when that organization makes its annual outing to that city. Cooperating with the Los Angeles club officials will be those of the San Diego Electric Club, who are pledged to help make the day a memorable one for their neighbor confreres.

Leaving Friday afternoon, Aug. 24, the club delegation will embark on the Ruth Alexander at San Pedro for a journey by water to San Diego. Arriving in San Diego the next morning, after a breakfast on board, sight seeing trips, golf, a swim at Coronado tent city, and other sports will be offered the visitors. At 2 o'clock that afternoon, following a picnic in Balboa Park, sports, races, and a baseball game have been arranged. At 6 o'clock a box lunch will be served, according to the published plan, and the party will start home on the Ruth Alexander that evening at 10 p.m.

In charge of the San Diego arrangements for the San Diego Electric Club, as hosts, will be Jess Zweiner, president of the San Diego Electric Club, Walt Wurfel, Carl Heilbron, A. E. "Doc" Holloway, Frank Munro and others.

Power Company Comes to Aid of Logan Municipal Plant

About 200 ft. of the pipe line of the Logan City municipal power plant was washed out on July 18. The water had been shut off in order that some repair work could be done, and when it was turned back into the old pipe line a section of it gave way.

The complete load was transferred to the Utah Power & Light Company's lines without more than five minutes' delay. Work on the new plant will be rushed, without attempting to repair the old pipe line. In the meantime the entire load of the city's lines will be carried by the Utah Power & Light Company, with whom the city has a contract for such service.

The Mountain States Telephone & Telegraph Company has recently purchased six lots in Denver, Colo., upon which it intends to erect a modern office building. At present the offices of the company are located in three different buildings and it is the desire of the company officials to gather all of the departments together in one structure. No definite plans for the erection of the building have been made as yet and it may be some time before any action is taken, according to J. E. MacDonald, secretary-treasurer of the company.

The permanent lighting system to illuminate the streets of the new city of Longview, Wash., being built by the Long-Bell Lumber Company, is under construction and will replace the present temporary crossarm lights. Upright ornamental concrete standards, 13 ft. high, will support 400-cp. lamps in the business section. Plans provide for eight standards to the block in the main business streets, and six or four standards in other districts. All wiring will be underground and much of it has been installed.



Six-ton electric gantry crane installed at the mill of the Los Angeles Lumber Products Company.

and man-pushed lumber trucks, where the boards are piled aboard an ungainly truck after coming through the mill and trucked to various parts of the yard, where the lumber is stacked according to dimension.

At the mill of the Los Angeles Lumber Products Company the lumber is carried along a moving platform, after leaving the mill, to various stations, where it is segregated into lengths. This platform operates along the runway over which the crane operates. The crane, with its gantry spread of 52 ft. and an additional cantilever spread at each end of 40 ft., making a total spread of 132 ft., is electrically controlled and operated.

The crane, operated by motors controlled by an operator housed at the top of the crane bridge, moves to the desired pile of lumber which is to be moved. An electrically operated trolley hoisting carriage, with a 6-ton capacity, operating at 60 ft. per sec., picks up the packages. This operation is likewise controlled by the operator. The packages measure about 5 ft. square and from 16 to 20 ft. in length. The crane then moves to the desired destination in the yard and deposits its load, or, if the lumber is to be loaded aboard an auto truck, it moves to that part of the yard where loading is in progress.

The Federal Power Commission has granted a license to the Unity Gold Mines Company for building a diversion dam on Elk Creek, and a power house and transmission line $9\frac{1}{2}$ miles long in Idaho and Valley Counties, Idaho.

power in the towns of Bay Point and Clyde. The Coos Bay Lumber Company recently installed a 250-hp. motor to operate a Cyclone blower system and this installation was the direct reason for purchasing the new equipment.

Distribution Right-of-Way Grant Is Given by Modesto

A permit to use the streets and alleys of the city of Modesto as rights-of-way for the transmission lines of the Modesto Irrigation District was given the District by the city council of Modesto recently. The permit covers a period of twenty-five years and provides that the District can not sell or assign any of its rights, gained under the permit, to any person, firm or corporation.

The City of Modesto is given the right under the permit, to use the poles and the conduits in the system, for the locating, constructing and maintaining of such wires for transmission of electricity as may be necessary or convenient for the city in the discharge of a public function.

A new substation with a capacity of 50,000 hp. has been placed in operation at San Pedro, Calif., by the Los Angeles Bureau of Power and Light. The structure and equipment cost the Bureau \$200,000. The new substation will replace four smaller stations in the harbor district, in supplying power to the industrial plants located there. Large lumber and oil refining plants located on the water front are the principal users of the power.

Government Engineers Surveying Part of Colorado River

The surveying and mapping of a 300-mile stretch of the Colorado River was started by engineers of the Geological Survey on Aug. 1. The survey will be made over the only section of the river that has not been so surveyed in any detail and includes the dangerous gorges of the Marble and Grand Canyons. This part of the river's course, which is crowded with bad rapids that swirl between steep rock banks, has been traversed on only six previous occasions. It was first explored in 1869, by Major John W. Powell, later director of the Geological Survey. The present party of engineers and geologists of the Geological Survey will make a trip by boat from Lee's Ferry through the canyons to the mouth of the Virgin River, in Arizona, a distance of about 300 miles, and will make records of the slope of this entire stretch of the river and of the topography.

The Colorado, one of the great rivers of the country, is often called the Nile of America. It drains nearly 250,000 sq. miles, an area equal to that of the Atlantic Coast States from Maine to Georgia. The highest points in its basin are the peaks of the Continental Divide, which stand more than 14,000 ft. above sea level, and a part of its water finds its way into Salton Sea, in southern California, which lies more than 250 ft. below sea level.

Stretches aggregating about 1,200 miles on the Colorado and its principal fork, Green River, and several hundred miles on other tributaries, have already been surveyed and mapped by the Geological Survey, and these stretches, together with the 300-mile stretch to be surveyed this year, extend continuously from the town of Green River, Wyo., on Green River, and from Grand Junction, Colo., on Colorado River, to the Mexican boundary. The results of these surveys are shown on a continuous river map in sheets of convenient size.

Detailed examinations are to be made of possible dam sites, which will be considered both from the engineer's and the geologist's point of view. Four boats of special type have been constructed to stand the rack and strain of the work in the canyons, and each member of the party will be equipped with life preservers. The boats will be manned by skilled boatmen, all of whom have had experience in the rapids of the Colorado. The rapids in this 300-mile stretch form some of the wildest water in the United States. Every precaution has been taken for safety and for the protection of the surveying and photographic apparatus.

Part of the outfit includes a special radio receiving equipment, and arrangements have been made with the "Los Angeles Times" and the "Deseret News" of Salt Lake City to broadcast items of interest to the party, which in turn will send out bulletins by courier at the trail crossings. The radio outfit consists of a standard regenerative receiver with two steps of amplification, modified in the instrument shop of the Geological Survey to meet conditions which may be expected in the canyon. The antenna wire, 150 ft. in length, is carried by the party on a small reel to facilitate winding on moving camp. Considerable static trouble is expected, owing to the frequent thunderstorms in

August and September, but the party nevertheless expects to be able to receive most of the messages.

The party consists of ten men. The Geological Survey engineers in the party are: C. H. Birdseye, chief topographic engineer of the Geological Survey, in charge; E. C. La Rue, hydraulic engineer; R. C. Moore, geologist; and R. W. Burchard, topographer.

Electro-Metals Company Project Plans to Be Completed

As the result of a recent decision of the Division of Water Rights of the California Department of Public Works, granting the Electro-Metals company an extension of time to Aug. 1, 1929, to apply to beneficial use 3,000 sec.-ft. of water from the Klamath River, company officials recently announced that the company would proceed with plans for the project. Tentative plans call for the erection of a 250-ft. dam at Ishi Pishi Falls. The company contemplates an extremely large ultimate development.

According to officials of the Electro-Metals Company, the Klamath River is an excellent location for the establishment of electro-metallurgical and chemical industries. The particular advantage of the situation is that low power rates could be secured and in addition low ocean freight rates could be obtained as ocean steamers could supply cheap transportation to adjacent tide-water sites. Because of the transportation facilities raw materials from all over the world could be secured at reasonable prices. The proximity of many of the power sites to deep water transportation makes the Klamath River sites even more valuable than those on other large rivers of the country, according to statements from company officials.

Radio Compass Proves Successful During Working Test

Successful tests of the Kolster radio compass have recently been completed on the Standard Oil Company's tanker, the J. A. Moffett, according to an announcement of the Federal Telegraph Company. The Standard Oil Company of California is reported to have ordered the installation of the radio compasses on its Pacific Coast fleet of twelve tankers.

The Kolster compass, when installed in the wheelhouse or chart room of a vessel, enables the masters of these vessels to work out their bearings regardless of weather conditions. In the past, mariners depended to a large extent upon their visual observations as to the location of the sun, etc., at certain times of the day in order to obtain their bearings.

The marine compass was originally designed as a safety device to be used in foggy weather. Recent developments have shown that it is adaptable for use in obtaining long-range bearings over distances of several hundred miles.

The Pacific Gas & Electric Company has recently announced that it will increase the size of its material storage yard and will add a number of new buildings to its equipment at Davis, Calif. The new facilities will consist of buildings for trucks, motor car storage and repairs, spur track, macadam roads, fences and yard improvements.

Books and Bulletins

A MANUAL OF ARTIFICIAL RESPIRATION

By CAPTAIN G. R. G. FISHER, director of accident prevention and instructor in first aid to industries and civic organizations, in affiliation with the Manufacturers' Association of the Chamber of Commerce, of the City of Omaha, Neb. 80 pages. 5¼ x 6½ in. \$0.75. Published by The Stratford Company, Boston, Mass.

Feeling that too many persons are allowed to die because they have been pronounced "beyond hope," the author has prepared this pocket edition dealing with the principles of artificial respiration. It is the author's belief that seven out of every ten lives lost ought to be saved. The book contains a description of the respiratory organs of the body giving the reader an idea of what his efforts are supposed to do for the injured person.

Both the Schaefer and Sylvester methods of artificial respiration are described in detail and complete information is given as to the application of the two methods. The text includes directions for resuscitating a person who has suffered an electric shock. In addition to giving information for reviving persons who have suffered from any of the accidents that require artificial respiration, the book contains excellent information regarding the transportation of persons incapable of walking.

The text is illustrated throughout with pictures showing the execution of principles brought forth by the author. These illustrations are of great value and make it extremely easy for the reader to visualize the process.

The handbook is an excellent compilation of first-aid methods dealing with cases where artificial respiration is necessary to restore the patient to life and should be available to every man in the electrical industry who has occasion to come in contact with persons working on electrical construction work.

"Theater Lighting, Past and Present" is the title of a comprehensive booklet which has just been issued by the Ward Leonard Electric Company, Mt. Vernon, N. Y. The book takes the subject of theater lighting from the birth of the theater and traces it to its modern application in the playhouses of today. The blazing pine knot, the open flame lamp, the candle, the later types of oil lamps and the gas lighting of the last century are all described. The earliest authentic application of electricity to theater lighting was an arc light used in a performance in the Paris Opera in 1846. In 1860 an arc light and prism was used to form a rainbow. In the same year electricity was used to produce the illusion of lightning. The last chapters of the booklet are devoted to Ward Leonard theater lighting equipment and contain some splendid illustrations of some of the larger American equipment. The booklet was produced under the supervision of Ray D. Lillibridge, Inc., New York.

Meetings

A.I.E.E. Convention Delegates to See Big Creek Plants

Arrangements for the Pacific Coast Convention of the American Institute of Electrical Engineers to be held at the Del Monte Hotel, Del Monte, Calif., Oct. 2-5, are receiving considerable attention from the committees in charge. H. W. Crozier, chairman of the publicity committee, has announced that the technical paper situation is being adequately covered by the special committees that have been appointed for that purpose. The papers on high tension transmission lines and radia are expected to be of high professional grade. An entire morning will be devoted to papers and discussion on radio.

In connection with the convention, the Southern California Edison Company, through R. H. Ballard, vice-president and general manager, has extended an invitation to those attending the sessions, to visit the Big Creek developments of the company. It is planned to take the delegates on a two-day inspection trip over the hydraulic development there.

The No. 3 plant will be put in operation some considerable time before the date of the meeting so it will not be possible to make this occasion the official starting of the plant. The company will make it possible for those who wish to go, to see the scope of the work and the tunnel construction at the discharge end of the Florence Lake Tunnel, as well as the operating plants below Huntington Lake. An opportunity will also be afforded to see one end of the 220-kv. transmission line that is operating between the Big Creek plants and Los Angeles.

For this trip the transportation committee is arranging for through Pullmans to leave Del Monte at 6 p.m. Oct. 5, arriving at Fresno at 6 a.m. Oct. 6. From Fresno, the Southern California Edison Company will be hosts to the delegates. The train for Big Creek will leave Fresno at 8 a.m. Oct. 6 and the return to Fresno will be on the night of Oct. 7. Connections to both Los Angeles and San Francisco can be made that night so that the delegates can arrive in either city early the following morning.

Huntington Lake Lodge will be open at the time that the party will make the trip so accommodations will be provided at Cascada. As the space is somewhat limited there the Edison company is desirous of ascertaining the number of delegates that will make the trip.

Lighting Spectacle Planned for Society Convention

Detailed plans for the special features which will mark the 1923 convention of the Illuminating Engineering Society to be held at Lake George, N. Y., Sept. 24-28, are nearing completion. A battery of great searchlights forming a scintillator of moving colored beams, will be the big event of the convention. This

scintillator, it is announced, will be located on the wharf in front of the Fort William Hotel, convention headquarters, and will send a multitude of powerful rays into the sky in a fan-like formation. By means of colored slides the beams will be constantly changed in colors, one blending into another to give a rainbow effect.

An elaborate program of fireworks is another feature, a high point of which will be the explosion of the largest bomb used in such displays. A jeweled emblem of the Society, illuminated in various colors by flood lights, is another thing of interest on which the committee is working. This will be placed on the grounds near the hotel.

W. D'A. Ryan, chairman of the general convention committee, under whose direction the lighting effects are being worked out, believes the illumination features of this meeting will compare favorably with the largest spectacles of the kind. The scintillator of colored searchlight beams is patterned after that used during the Panama-Pacific International Exposition.

The officers of the convention committee consist of Mr. Ryan as chairman, Henry W. Peck, vice-chairman, and H. E. Mahan, secretary.

Southern California Edison Company representatives of twelve districts served by the company attended the semi-annual conference of storekeepers, clerks and other officials at Monrovia, Calif., on Aug. 1. One hundred and twenty-five men were present at the meeting. During the conference brief talks on store management, economy of management, cooperation of employees and other business subjects were presented. The meeting was planned by Frederick Schwartz, district manager at Monrovia, and W. J. McCullough, general storekeeper for the company, was the speaker at the opening luncheon meeting of the conference.

COMING EVENTS

Convention of Electric Clubs—

Annual Convention—Association Island, N. Y.
Sept. 16-19, 1923

Rocky Mountain Division—National Electric Light Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

Colorado Public Service Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

American Institute of Electrical Engineers—

Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

A meeting of the stockholders of the Southern California Edison Company will be held in the company's building in Los Angeles, Calif., on Sept. 7. At that time the stockholders will vote on the increasing of the capital stock of the company from \$100,000,000 to \$250,000,000. The proposition of increasing the bonded indebtedness by \$250,000,000 is also to be considered by the stockholders. The authorization of these increases will act only as an enabling act as before any of the bonds can be sold, the permission of the California Railroad Commission must be secured. A proposal to execute a new mortgage is also to be presented.

Central Station Men Meet with San Diego Contractors

To provide the first official battleground for the newly formed San Diego County Electrical Contractors' Association, representatives of the San Diego Consolidated Gas & Electric Company were called in to thresh out mooted points in the relations between the contractors and the central station, at a meeting held in the San Diego Hotel, July 27. L. M. Klauber, general superintendent of the company, headed the delegation. The other representatives were: C. L. Lawrie, Paul Hatch, J. E. Hayes and Wm. H. Talbott. When the meeting closed the grievances of both parties had been aired and given careful consideration, and the feeling that much good had been accomplished in the way of promoting better understanding between the two seemed to prevail.

Mr. Klauber, in the course of his introduction, anticipated the discussion by a promise to have definitely established, a policy in regard to underground service in overhead districts where the customer wanted such service and would provide the necessary transformer vaults, etc. This he promised would be worked out carefully in detail, so that no future controversy need result from lack of precedent.

The meter box, and the necessity thereof, especially in cases where there were screened back porches, provided the warmest topic for discussion. Meter service location applications also came in for much explanation. Argument failed to shake the utility representatives from their stand in demand for meter boxes.

Though far from settling all points of contention brought up by the contractors in the gathering, the meeting, as the first genuine attempt of both utility and contractors to meet as representative entities and work out mutual relations together over the table, was held to have been an important event in San Diego electrical contractor development. Other similar meetings are contemplated in the future, it was intimated.

Carl Heilbron, chairman of the contractors' association, called a closed session of the contractors following the general meeting.

Employees of the Denver Gas & Electric Light Company, Denver, Colo., held their annual picnic at Elitch's Gardens Aug. 2. The picnic was held under the auspices of the local chapter of the Doherty Men's Fraternity. All departments, with the exception of those needed in the conduct of the plant and office, were closed for the day. One of the feature contests conducted during the day was the placing of poles and the stringing of high voltage power lines.

A dinner in honor of R. H. Keays, chief engineer of the Moffat Tunnel project, was given in Denver, Colo., by the Engineering Council of Colorado. Oliver H. Shoup, former governor under whose administration plans and arrangements for the construction of the tunnel were made, addressed the gathering on the subject, "The State and the Tunnel." Mayor Stapleton of Denver spoke on "The City and the Tunnel." W. F. R. Mills, former mayor of Denver, was the toastmaster at the dinner.

Manufacturer, Dealer and Jobber Activities

The Okonite Company, Passaic, N. J., has recently published a twelve-page booklet entitled, "Splices and Tapes." The booklet deals with the importance of splices and describes the function of the tape that is to cover the splice. The booklet contains a description of the various styles of friction and adhesive tape manufactured by the company. Directions for making a perfect splice are also presented.

The Brenner-Moxley-Mervis Company has recently been organized by Chicago, Ill., business men to engage in the production of copper rods and drawn copper wire for electrical power transmission work. The company has acquired an eight-acre tract adjacent to both the Illinois Central Railroad and the Santa Fe Railroad. The construction of the first unit of the plant that is to eventually cover the entire site has been started. The plant will use approximately one hundred million lb. of copper annually and will require four thousand horsepower to operate.

The Westinghouse Electric & Manufacturing Company has issued an eight-page booklet, Special Publication No. 1667, containing a list of over three hundred successful installations of Westinghouse industrial heating apparatus. The list, although containing only the more important installations, is impressive because it gives a definite idea of the extent to which electricity is being used for industrial heating purposes. It shows that electricity is not simply the fuel of the future, as is often supposed. A few of the industries making use of electric heat are: manufacturers of abrasives, manufacturers of airplanes, brick plants, bakeries, furniture factories, hospitals, railway companies, restaurants and cafeterias, rubber mills, textile machinery manufacturers, textile mills, tool manufacturers and wire mills.

The Steel City Electric Company, Pittsburgh, Pa., has published Catalog No. 34 which supersedes all previous catalogs of the company. All of the electrical specialties manufactured by the company have been listed in the new edition and each piece of equipment is given a code word. This use of code words will assist jobbers and dealers to order by telegraph.

The Holophane Glass Company, Inc., New York, N. Y., has issued a twelve-page illustrated booklet describing the new Holophane lightmeter. This booklet shows the details of construction of the lightmeter and gives instructions in its use.

The Edison Electric Appliance Company, Inc., Chicago, Ill., has recently placed on the market a small bake oven for use by small delicatessens and restaurants. The device is of the single-deck type with a capacity of twenty 1-lb. loaves of bread. A special top deck may be added to this at small expense, if the owner should desire to make the addition.

American Spiral Pipe Works, Chicago, Ill., has recently issued catalog No. 22 describing Taylor's spiral-riveted

pressure pipe. The catalog describes in detail the manufacturing process by which the pipe is made. It also contains many interesting photographs of actual applications of the pipe to hydroelectric development. Copies of the catalog may be had by communicating with the manufacturer.

The Automatic Electric Heater Company, of Warren, Pa., has recently added three new outside storage type heaters to its line of electric water heaters. The new heaters are furnished in 20, 30 and 40-gal. capacities. The new heaters provide for the storing of either a small or a large amount of water in the tank or the whole tank may be heated. The heaters are furnished with 1,500, 2,000, 3,000 and 4,500-watt ratings for use on 110 and 220-volt circuits.

The General Electric Company recently received an order from the Pacific Electric Railway of Los Angeles, Calif., for fifty electric street cars. The cars are to be used in the interurban service of the railway company. The amount of the contract is approximately five hundred thousand dollars.

Wolf Electric Works, of Portland, Ore., has recently moved into its new fireproof building at 407 Everett Street in that city. The concern specializes in the rewinding of motors and generators and in repairing all classes of electrical machinery. A large quantity of special machinery has been installed in the new building and the company is now equipped to handle all sizes of motors or generators needing repairs.

The Fouch Electric Manufacturing Company, of Portland, Ore., has recently announced that it has succeeded the Western Electric Works of the same city. The new concern maintains the same management and ownership and is now situated at 105 North Ninth Street. The company will specialize in the development and manufacture of newly patented electrical devices and machines.

The Gisholt Machine Company, Madison, Wis., has recently prepared a four-page leaflet describing the Precision Balancing Machine that it manufactures. With this machine it is possible to obtain static and dynamic balance by two single corrections individually measured. The device is adaptable to balancing work on crank-shafts, motor and generator rotors, flywheels, spindles and other rotative machine parts.

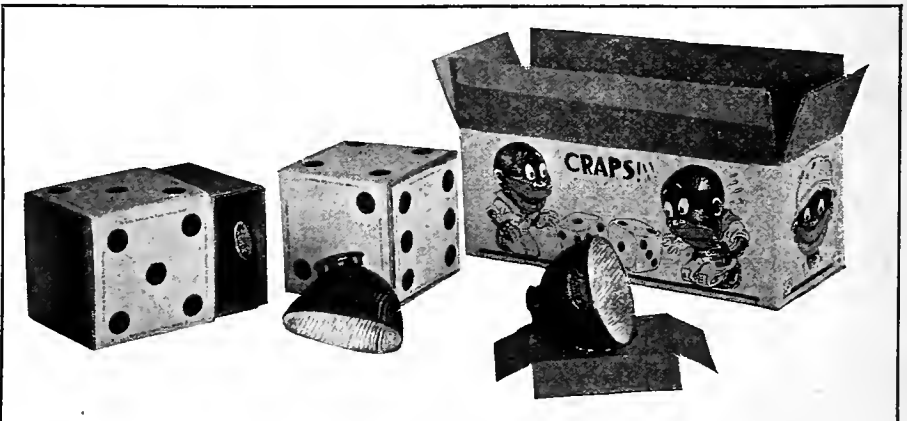
The National Vulcanized Fiber Company, with head offices in Wilmington, Del., has moved its San Francisco sales office to a new three-story building at Fourth and Minna Streets in San Francisco. In the past, offices were maintained at 324 Sharon Building. In addition to the offices which will be located in the new building, the local sales office will have space for stocking a complete line of Peerless insulation and fiber.

The Pure Carbon Company, Welleville, N. Y., has announced that John Nangle, 164 West Washington Street, Chicago, Ill., has been appointed the company's representative in that city. Mr. Nangle is in a position to give personal engineering service on all brush problems and other related subjects.

The Whitmore Electric Company, 1637 Court Place, Denver, Colo., formerly engaged in the distribution and sale of portable farm power plants, has become an exclusive manufacturers' representative in that territory. Among the accounts which have been taken on and for which wholesale stocks are maintained are: Sweeper-Vac Company, Springfield, Mass.; Hart-Hegeman, Hartford, Conn.; Grinnell Washing Machine Company, Grinnell, Iowa; Moe-Bridges Fixture Company, Milwaukee, Wis.; Domestic Motors Company, Cleveland, Ohio. R. F. Whitmore is the general manager of the company.

The Edison Electric Appliance Company, Inc., has recently placed on the market an electric waffle iron designed for baking single waffles 7 in. in diameter. The new iron is suitable for use by small concerns that cannot afford to own the larger sets of irons and where the demand would not justify the larger installation. Three heat control switches are provided for both the top and bottom irons which are separate units. This enables the operator to turn the current to the low position during hours that the iron is not being used. The electric waffle baker is so built that when the demand for waffles increases additional units can be purchased and banked end to end with the first one.

The Trumbull Electric Manufacturing Company, Plainville, Conn., has recently put on the market a new tumbler switch. The switch is designed for panel board use and is rated at 30 amp., 125 volts. The principal features of the new switch are its strength and compactness.



"COME SEBEN — US READS 'EM 'N WEEPS!"

When we got our set of "Bones" we quit work at the desk for the afternoon and massaged the carpets. Maybe you did the same. If you did we hope the limit was low. (We do not often run pictures of this nature on this page but the one reproduced above pleased us so much that we thought you might be interested.)

Personals

Earl F. Whitney, for thirteen years connected with the General Electric Company in the Northwest, was advanced to the position of manager of the Portland office on July 19, following the reorganization of the office due to the transfer of A. S. Moody, assistant



EARL F. WHITNEY

Northwest manager, to the Los Angeles office as manager. Through his many years of experience with the company Mr. Whitney has familiarized himself with all branches of the work. Mr. Whitney was born on Bleakhouse plantation, Jefferson County, Miss., where he attended the public schools and later a boy's school at Nochez. Having in mind a university education, he prepared himself at Phillips Exeter Academy and entered the Massachusetts Institute of Technology with the class of 1907, graduating from the electrical engineering department. Mr. Whitney's employment with the General Electric Company dates from the fall of 1907 when he entered the Schenectady works as a test man. Two years later found him in the sales training course and in the fall of 1909 he was transferred to the sales force of the San Francisco office of the company. One year later Mr. Whitney came to the Northwest as a salesman working out of the Seattle office and in 1912 was transferred to Portland. Since that time, with the exception of two years during the war, Mr. Whitney has specialized in electrical application in the logging and lumbering industry of Oregon and Washington, and has for the past four years been manager of the lumber industries department of the Northwest. During the war Mr. Whitney served over seas with the 29th Engineers, afterwards the 74th, and saw active service at the front in the work of flash and flame range finding. After the Armistice he was transferred to Paris under Col. D. C. Jackson in the engineering section to determine the amount of damages in the devastated areas. Mr. Whitney has during the past years served the local branches of both the N.E.L.A. and A.I.E.E. in various capacities.

Frank E. Blake, general manager of the Hawaiian Electric Company, Honolulu, is a recent San Francisco visitor.

A. W. Whitney, chairman of the Engineering Standards Committee, New York, is a recent San Francisco visitor. Mr. Whitney was a former professor at the University of California.

A. L. Dabney, head of a reclamation project at Memphis, Tenn., is a recent California visitor.

J. L. Kirkland, of the Indiana Rubber and Insulated Wire Company, Jonesboro, Ind., is a recent Pacific Coast visitor. Mr. Kirkland, whose headquarters are in the Chicago office of the company, is making an extensive investigation of the western market.

Sidney Beatie, general manager of R. Williamson & Company, Chicago, fixture manufacturers, is a recent Pacific Coast visitor. Mr. Beatie is one of the foremost merchandising experts in the country.

O. B. Coldwell, vice-president and general manager of the Portland Railway Light & Power Company, was a recent San Francisco visitor. Mr. Coldwell renewed California associations and incidentally followed up some business in conjunction with the Oak Grove development of the Portland company, which he reports as showing good progress.

James W. Redpath, secretary of the California State Association of Electrical Contractors and Dealers, left San Francisco on Aug. 8, to make a survey of conditions in the San Joaquin Valley and along the coast of central California. While away from San Francisco, Mr. Redpath will spend a few days in Fresno and Bakersfield, and will then return to his headquarters by way of the coast cities.

V. W. Hartley, assistant to the manager of the California Electrical Co-operative Campaign, left San Francisco on Aug. 3, in charge of the traveling window display of that organization. Mr. Hartley will supervise the exhibiting of the window display in 39 California cities while he is on his trip. Merchants of 136 communities will be invited to view the Campaign's exhibit.

Robert Sibley, consulting editor of the Journal of Electricity and executive manager of the California Alumni Association, has taken over the title as well as the duties of convention chairman of the Pacific Coast A.I.E.E. convention to be held in Del Monte in October. Professor Ryan having decided not to accept the title of honorary chairman of the gathering. Plans are progressing for a successful meeting, both in program and entertainment features.

E. O. Shreve, San Francisco manager of the General Electric Company, left for Honolulu on Aug. 8. Mr. Shreve will be away from San Francisco, transacting business in the Hawaiian Islands until about the first of September. On his return he will leave immediately for New York and other eastern cities.

Allen Bole, president of the National Pole Company, of Escamaba, Mich., one of the largest pole distributing concerns in the United States, is a Northwest visitor. Since the first of July he has visited the company's plants at Everett and Spokane and spent considerable time in Seattle.

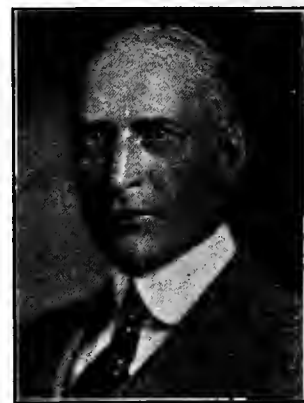
A. P. Davis, former chief of the Reclamation Service of the United States, is a recent San Francisco visitor.

Herbert A. Cram has been appointed electrical representative of the Western Division of Landers, Frary & Clark, with headquarters in San Francisco, succeeding W. C. Sears, who has been transferred to the company's factory at New Britain, Conn., where he will take up wider duties.

Mrs. C. F. Fisher, of the Fisher-Conery Electric Company of Chico, Calif., and recognized as one of the most able merchandising experts in this part of the country, spent several days in San Francisco recently on business connected with her firm.

N. P. Bartley, sales manager of the Chicago Automatic Company, has been a recent visitor to the Pacific Coast. Together with A. Combs, western district manager of the company, and Theodore Hall, their Pacific Coast agent, he has been analyzing the western business situation, which he finds in a promising condition.

W. S. Berry has recently taken over the title of manager of the San Francisco office of the Western Electric Company. He still performs the duties which come under his former title of sales manager, with the additional responsibilities of his new office. Mr. Berry's early connections with the electrical industry were with the Thompson-Houston Company where he took a student course, being later transferred to their western district, which comprised all the country from the Mississippi to the Pacific. Later he spent some time with the Consolidated Traction Company of Pittsburgh. Since 1904, his work has been with the Western Electric Company and since 1908, with the San Francisco branch of that company. Mr. Berry has been active in the affairs of the local electrical industry, both



W. S. BERRY

among the jobbers and in the broader inter-industry activities fostered by the California Electrical Co-operative Campaign and the San Francisco Electrical Development League. He was one of the originators and served as director of the drive carried on by the League to see to it that every member became a power company stockholder—a movement whose importance was recognized and which was followed in many other sections of the country.

Harry Strunk, manager of the experimental department of the Edison Electric Appliance Company of Ontario, Calif., is a recent San Francisco visitor.

E. C. Lackey, vice-president of the Colorado Springs Power Company, Colorado Springs, Colo., attended the meeting of the Advisory Committee of the California Electrical Cooperative Campaign held in Los Angeles, Calif., July 30. Among the other out-of-town men in attendance were: Don C. Ray, manager of the public relations department of the Pacific Gas & Electric Company, San Francisco; George Bigelow, Southern Sierras Power Company, Riverside; H. H. Courtright, manager Valley Electrical Supply Company, Fresno; Garnett Young, general manager Garnett Young & Company, San Francisco; Robert L. Eltringham, manager California Electrical Cooperative Campaign, San Francisco; Harry Woodward, sales manager Great Western Power Company, San Francisco, and George C. Tenney, associate editor Journal of Electricity, San Francisco.

C. C. Hillis, prominent jobber of San Francisco, has changed his title from that of vice-president to president and treasurer of the Electric Appliance Company. Mr. Hillis has long been connected with the electrical industry of the Pacific Coast and has been associated with most of the progressive movements in this field. He was one of the early advocates of the California Electrical Cooperative Campaign and now serves as one of the representatives of the electrical wholesalers on the Advisory Council. He has on several occasions served as competent chairman of the Pacific Coast Division of the Electrical Supply Jobbers' Association. Twice he has held the position of president of the National Electrical

C. B. Hawley, manager of the Inter-mountain Electric Company, Salt Lake City, attended the recent convention of the Apex Electrical Distributing Company at Cleveland.

Herbert S. Evans, dean of the college of engineering and former professor of electrical engineering at the University of Colorado, has been elected a member of the board of directors of the Society for the Promotion of Engineering Education. He has just returned from the annual convention of that organization at Cornell University, Ithaca, N. Y., and was successful in having Boulder, Colo., selected as the 1924 meeting place. The convention next year will be held at the University of Colorado starting June 15 and will mark the first meeting of the association to be held in the West.

S. E. Mason, electrical engineer of San Antonio, Texas, has been appointed superintendent of equipment for the San Diego Electric Railway Company, and will have charge of all its street railway equipment, ways and structures, bonding and welding departments. Mr. Mason was superintendent of equipment in a like capacity for the San Antonio Public Service Company. He was born in Texas, in 1889, graduating from the University of Texas in 1911 as an electrical engineer. Before entering the university he was manager of an ice and electric plant. He was employed by the San Antonio Gas & Electric Company after graduation, and made electrolytical surveys of that city for the Bureau of Standards.

W. H. Crawford, manager of the new industries department of The California Oregon Power Company, recently spent some days in San Francisco on the business of his company.

Chas. O'B. Murphy, vice-president and general manager of the Central Indiana Power Company, announces his resignation from all offices in that company and its affiliated organizations in Indiana. His plans for the future are indefinite.

C. E. Blee, until recently assistant engineer with The California Oregon Power Company, has resigned from that position to become chief assistant to E. E. Carpenter, newly appointed consulting engineer to the British Columbia Electric Railway Company, Ltd., of Vancouver. Mr. Blee first entered the employ of The California Oregon Power Company in 1916 on the construction of the Copco dam and has been with that company since that time except for a year in 1919-1920 when he served as assistant professor in the department of civil engineering at Stanford University. His work will bring him in touch with the extensive program of new construction which is being undertaken by the British Columbia company and which will be under Mr. Carpenter's direction.

W. E. Finch, of the San Francisco office of the Apex Electrical Distributing Company, has recently transferred his activities to the Kansas City branch of that company.

George P. Baldwin, general manager of the merchandising department of the General Electric Company, formerly of San Francisco, and now with offices in Schenectady, arrived in San Francisco on Aug. 6. Mr. Baldwin is making a circuit of the divisional headquarters of his company.

E. R. Hannibal, superintendent of the Interstate Utilities Company, Spokane, whose election as chairman of the Spokane Section, A.I.E.E., was recently announced, graduated from the University of Utah in 1911, with the degree of B.S. in mechanical engineering. Having worked his way through school, Mr. Hannibal spent the following fourteen months in acquiring a homestead in Nevada, this venture being considered in the nature of a well-earned vacation. Upon proving up, Mr. Hannibal entered the service of the Rocky Mountain Bell



E. R. HANNIBAL

Telephone Company as an assistant in the engineering department and later became assistant construction engineer for their successor, the Mountain States Telephone & Telegraph Company, holding that position until the entry of the United States into the war. At that time, he helped organize a Telegraph Battalion and was commissioned a first lieutenant in the Signal Corps, 40th Telegraph Battalion. After the St. Mihiel drive in 1918, Mr. Hannibal received a citation from General Pershing and was promoted to the rank of captain. After leaving the service in July, 1919, he again joined the Mountain States Telephone & Telegraph Company as assistant valuation engineer, with offices in Denver, where he remained until his appointment as superintendent of shops of the Inter Mountain Electric Company in Salt Lake City, in February, 1920. In October, 1920, Mr. Hannibal accepted his present position with the Interstate Utilities Company of Spokane.

T. E. Bibbins, president, and D. E. Harris, vice-president and general sales manager of the Pacific States Electric Company, recently left San Francisco on an extended trip through the Pacific Northwest. All of the offices of the company will be visited by the two executives.

H. Birchard Taylor, president of the Pelton Water Wheel Company, has returned to Philadelphia after making quite an extended visit in San Francisco. Mr. Taylor spent considerable time in San Francisco inspecting the shops of the Pelton company.

Ralph B. Clapp, of the firm of Clapp & LaMoree, Los Angeles, manufacturers' agents, is in the East visiting the various factories which his firm represents in this section. Mr. Clapp expects to visit Chicago, New York, Pittsburgh, Boston and other eastern cities.



C. C. HILLIS

Credit Association and has also served many years on the board of directors of that organization. Mr. Hillis is noted on the golf course as well as in business circles and has at one time or another held most of the cups available on this coast. On more than one occasion he has acted as successful director of sports at the coast conventions. He has been instigator of many movements of inter-industry co-operation and has had a prominent part in their carrying out.

Arthur Elkins, secretary of the San Francisco Electrical Contractors and Dealers' Association, recently returned from a stay at Gilroy Hot Springs, where he has been recuperating from an extended illness.

Trade Outlook

San Francisco

While the death of President Harding with the consequent closing of business houses has caused some slowing up of all markets in the San Francisco district, no permanent depression appears to have resulted. Business leaders have expressed their confidence in the continued prosperity in all lines.

The retail field shows some advance over the past few weeks, probably due to the close of the vacation period—in general business compares favorably with the corresponding period of the preceding year. Prices for grain and dried fruit have been unsatisfactory, with the result that activities in this line have slowed down somewhat, but industries are active and sales in metal goods and machinery in general have been extensive. Out of town collections are reported somewhat slow, undoubtedly reflecting the agricultural situation.

Building permits continue large, particularly of residences of the medium type, and there is considerable movement in construction materials. The Coast furniture dealers' convention held here during the last weeks of July stimulated buying of household equipment, and considerable interest is being shown in the National Retail Furniture Dealers' Convention which is scheduled for the coming month.

Los Angeles

A slowing up in the purchase of retail electrical apparatus and appliances was noted for the last half of July, but this was only to be expected at this season. The sales continued good and the showing is above other years. The sale of radio apparatus, including sets, parts and supplies has been far ahead of the corresponding period of last year; this has been one of the outstanding features in electrical retailing all summer.

During the last week of July and the first week of August the local electrical jobbing houses experienced a slight falling off in their accustomed sales, in large measure due to the fact that during that period practically the entire sales force were on vacation. The continued building activity which shows no signs of letting up is responsible for large demands for wiring devices and supplies. The stock situation is much improved, and now even conduit which for such a long period of time was so scarce is obtainable in quantity to satisfy the huge demands.

Manufacturers report the usual activity, with good supply of stock and excellent sales.

The supply of labor is good at this time with a temporary surplus in the building trade which is due to heavy influx from other communities.

Salt Lake City

Resources of Utah state banks and trust companies have passed the \$100,000,000 mark, according to figures recently issued by the state bank commis-

sioner, the increase over the preceding quarter amounting to nearly \$2,500,000.

Salt Lake City is in the midst of a building boom that promises to assume unusually large proportions before the summer is over. Figures for July show that the value of construction for which permits were issued during the month far exceeds the value for the corresponding month of last year and the preceding month this year.

General jobbing and wholesale trade in Salt Lake City and adjacent territory has greatly improved since 1922. Retail business, though slower, displays a slight advance. Manufacturing and industry are active and collections are continuing to improve.

Electrical dealers are intensifying their efforts in the sale of seasonal appliances such as fans, ranges, etc., and a fair amount of business is reported.

Mining operations continue to be on an extensive scale. There is every indication of continued and increasing activity in business and industry.

Denver

Business conditions in Colorado continue on a steady and prosperous basis. In most of the metal mining sections, conditions have improved, creating a good demand for mining and smelting machinery along with the necessary electrical equipment. The majority of the coal mines, however, are operating on a part time schedule due to the low seasonal demands. In the agricultural sections favorable reports are based on increased acreage in crops over that of last year together with good weather conditions, although recent drops in market prices have proved discouraging to the farmers.

Building activities are more or less confined to the larger cities, especially Denver where in July, 571 permits were issued for \$1,416,000 worth of buildings contrasted with 520 permits in July, 1922, for a \$1,097,000 program of construction. Construction for the first seven months of the year totals \$12,950,450, an increase of \$2,621,000 over the same period in 1922.

Energy output of most central stations in the state continues to increase, necessitating material improvements and additions to generating and transmission facilities. Small heating appliance sales are slow and fan business is only normal. A good movement in electric ranges is reported out in the state.

Spokane

Business conditions are experiencing the usual summer lull, but with the prospects of good crops, a good fall is anticipated. Fruit growers in Spokane Valley disposed of a large berry crop through a pool operated by the growers' union, amounting to a total of \$100,000. Some of the individuals netted as high as \$300 per acre. The apple crop is expected to be about 50 per cent normal. The wheat harvesting has be-

gun, and the calls for labor have just about been met.

Lumbering continues strong, although Spokane factories are running light just now. A resumption of activity is expected within another 60 days. Four large plants handling wood products are to be erected in this vicinity in the near future.

Total building permits for the first half of 1923 amounted to \$1,505,290, which the Spokane Chronicle stated exceeded the record of all other northwestern cities except Seattle and Portland. Total for Spokane up to Aug. 1, was \$1,686,935.

Mining activities continue at the same high rate set early in the year. A severe blow to the Coeur d'Alene District was received on July 14 when the towns of Burke and Mace, Idaho, were completely destroyed by fire. The Hecla Mine, one of the largest lead producers, was shut down as a result of losses and damage sustained by them, but they began reconstruction without delay, and will be under production by next spring.

Seattle

Business on the whole has been quiet, although satisfactory showing is made for this season of the year. Unstable prices in the wheat market tend to inject an element of caution in all rural sales. The western steel trade continues active and distribution and industry as a whole are in a more favorable position than for three years past at this season. The Northwest salmon pack gives indications of making a satisfactory showing this year throughout the entire district.

The lumber business continues active. Production has been maintained 17 per cent above normal and a slightly stronger tone is evident in the lumber market. Shipments and cut are reported below orders accepted during the past two weeks.

Building operations are particularly active in the field of residences and apartment houses. A 25 per cent increase in the building materials industries has already been recorded for this year, as compared for the corresponding months of 1922.

Portland

The warm days have brought with them the usual summer slump in retail buying. Orders for ranges, however, are holding up well. Electrical jobbers report some falling off of wiring materials which agrees closely with the slowing up of building. It is expected that July totals for building permits will fall considerably short of June but will exceed July of last year.

Reports from the West Coast Lumbermen's Association show that lumber manufacturers are slow to reduce production. The mills continue to turn out lumber well above the normal rate. Orders have fallen off somewhat, but are still above normal and prices remain high enough to give a nice profit. A survey of stocks on hand in the mill yards show stocks far below normal. Lumber production will not be reduced until stocks have been replenished.

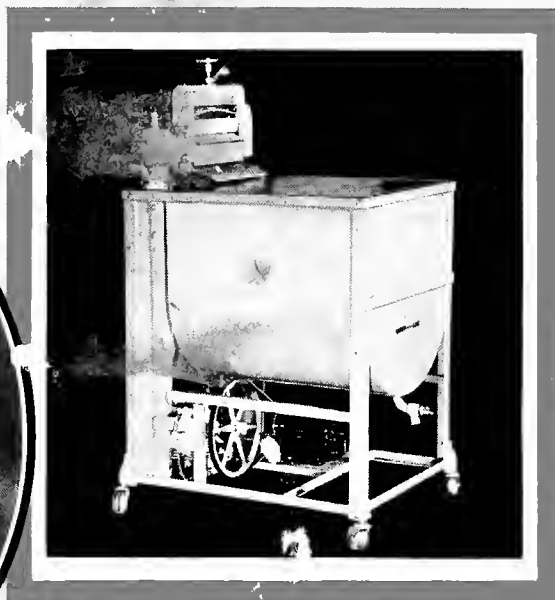
The situation with the wheat growers is a serious one. Prices are said to be below the cost of production. Crops are good but the situation generally is unsatisfactory.

Journal of Electricity

25 Cents a Copy

September 1, 1923

San Francisco



The Master Washer

I Built It to Retail for \$135.00 Easy----

But I Priced It to Retail for \$100.00 Flat!

DEALERS: Figure the volume you can do
with a proposition like this!

There's a bigger market for a strictly high grade \$100 metal cylinder electric washer than for any other priced machine. We are handing you that market on a silver platter.

The new Master is "Barker-Built and Meadows-Made!"—a combination that has never been equalled. In the great Meadows plant where the finest washers have always been made, Harry L. Barker has built just the kind of washer any

honest dealer would like to have his own name on in gold letters.

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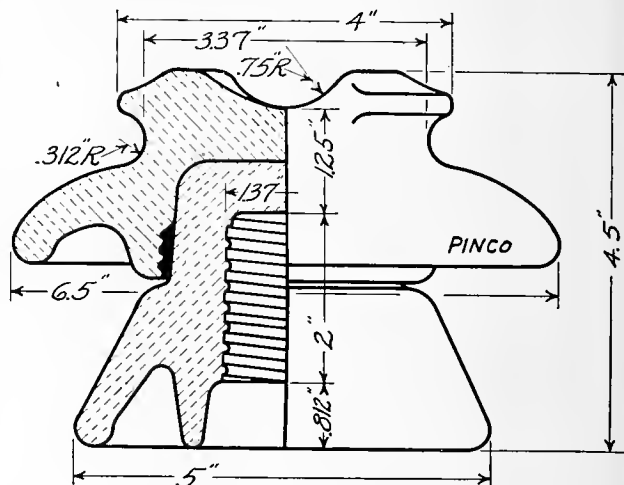
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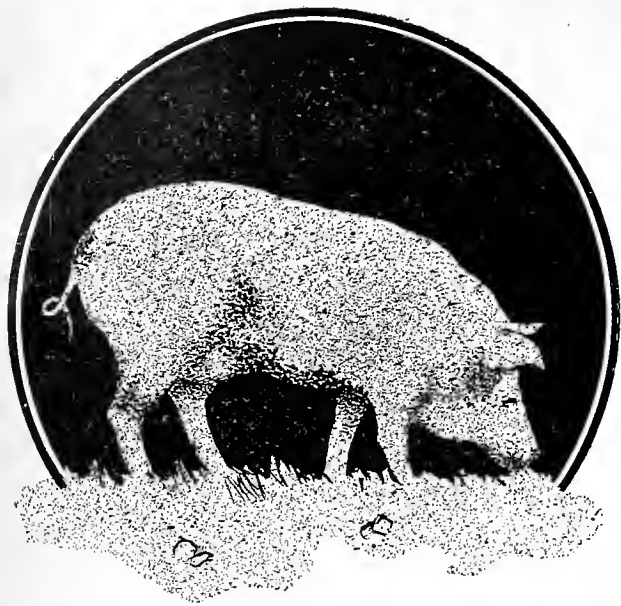
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An Announcement Concerning the New Electrical Code

WITHIN the next month or six weeks the National Electric Code as prescribed by the National Board of Fire Underwriters will be ready for distribution to contractor-dealers, city electrical departments and central stations. The Code will become effective Jan. 1, 1924 and will be in force for three years.

It is with pleasure that we announce to our readers that beginning Sept. 15, 1923, there will appear in the Journal of Electricity a series of articles by Claude W. Mitchell, electrical engineer, Board of Fire Underwriters of the Pacific, explaining the changes which will appear in the new Code. In addition to these articles the Journal of Electricity will conduct a column in which questions relative to the new Code will be answered for our readers. Mr. Mitchell will assist in the editing of this column. It is our intention to place before those interested a thorough explanation of the changes and revisions which have been made in the old Code before the new one goes into effect.

Great care has been taken by those who revised the code to incorporate all rulings which apply to one specific installation or type of installation in one section of the new book. This new arrangement will make it easier to understand and refer to.



Pigs is not Pigs!

AMONG the various well known facts that are not true is the statement, "Pigs is Pigs." It has come to convey the idea that all pigs are alike.

How far from the truth! There is almost as much difference between the corn fed porker and the razor back hog as there is between a fixture hickey and a pipe hickey.

By the same token, "Switches is not Switches." They may look alike and may cost the same, but that is often where the similarity stops.

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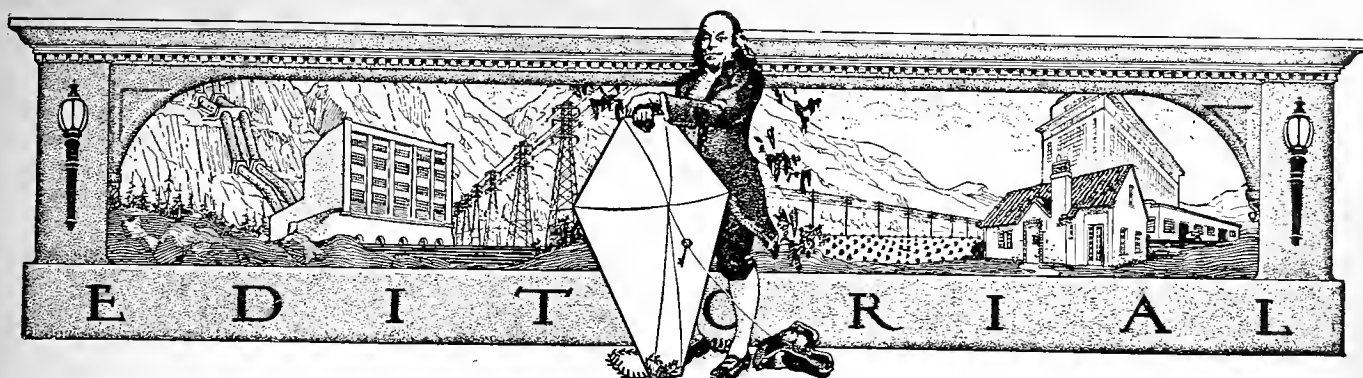


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On the Right to Submit Evidence

WHENEVER a campaign for municipal or state ownership comes before the people for consideration, there is a great cry on the part of the advocates of the particular proposition that the power companies, or the railroads, or the insurance companies, as the case may be, are dishonestly spending money to defeat the measure. According to these gentlemen, a privately owned company should in such case remain in dignified silence, permitting whoever would impose a new tax upon it or start a subsidized competitor against it, or legislate it out of existence, to talk at will before the public and to spread propaganda, however unfounded, without reply.

IN all fairness and in the interest of their own self protection, the American people must recognize that this would be a poor state of affairs indeed. Privately owned business has a right to submit evidence in the case which decides its life or death—indeed, by all its obligations to the public welfare, as well as to the interests of its own stockholders, it is obligated to present its expert testimony as to the facts of the case. Who shall object to the scientists and doctors waging war against the annual attacks of the anti-vivisectionists? Who would protect the public against the cranks who advocate the immediate adoption of the single tax, did not those whose businesses would be affected marshal the arguments against them?

OUR system of deciding public questions by popular vote is a fundamental principle of our government, but no one could

claim for it that it is an economical method of deciding matters. Undoubtedly the government which exists under the rule of a despot is less wasteful in election expenses if not so productive of a high level of individual independence and the training of the vox populi. We have decided against despots, which means that we must be prepared to pay the bills of our democracy. And one of those bills is the expense of listening to both sides of an argument.

THIS is no brief for underhanded methods on the part of any participant in an election contest—but such methods have long since shown their futility. Bribery and corruption bring their own punishment in inevitable disclosure and reaction. Even the subsidizing of supposedly neutral bodies and the presenting of the argument as though from other sources, although intrinsically harmless, perhaps, has been shown to be an unwise obliquity. But the frank telling of its story and the presentation of its case from its own well informed angle is the simple right of so-called "Big Business" as well as of the individual. And, be it said, it is just such legitimate expenditures that the public ownership orators have quoted with hushed voices and insinuating glances. The public should resent this form of demagoguery; it should go further and recognize its obligation of gratitude to those who have been waging a fight which has been in the interests of individual initiative and of traditional American independence, as well as in the interest of their own safety.

A Research Department for the Power Company

NO large manufacturing plant is complete these days without a research department—and some of the most important scientific advances have come about through investigations made in these laboratories, rather than from universities and special foundations. To a very large extent, the power company is content to stand back and allow such research work as is accomplished in the electrical field to be done by one of these agencies. The results are valuable—but they are not calculated to meet the special central station needs.

The power company has particular problems of its own to study which will be taken care of by no one else. Why should it not have a research department of its own? The simple testing of meters and other elementary work which is carried on by the average company do not meet the needs at the present time. More complete equipment and an adequate staff are required if results of value are to be accomplished. Line problems, pole testing, new industrial applications, and the thousand and one unanswered questions of power company procedure could be attacked in such a laboratory—and progress would be brought about which it would take long years to obtain by the cut and try methods now in vogue.

A New Idea for the Home Electric

ELECTRIC Homes as first displayed suggested their adaptability for the rich alone. Usually one of the most attractive (and incidentally one of the most expensive) new homes in town was utilized and sold later complete without electrical equipment for from \$25,000 to \$75,000 to the highest bidder. More recently the idea of utilizing the modest home has grown and electric home exhibits have centered around the bungalow and the home built for actual use by the contractor himself or for some one of the public spirited citizens who has allowed it to be used for exhibition purposes.

A new idea has recently been introduced in Philadelphia where a double electric home exhibit is being staged, one of the houses being a newly constructed residence and one an old home which has been rewired. The West has not a large field of unwired residences which offer prospects to the contractor-dealer, as has such a city as Philadelphia where more than one-half of the homes are without the benefits of electricity and where part of the population still uses oil lamps for illuminating purposes—but the West has a large number of homes which were wired in the early days of the electrical industry and which would be greatly improved by being brought up to date.

Why not an electric home exhibit staged in some one of these older houses, bringing the wiring and fixtures up to date and showing what may be done to bring comfort to the many who are not contemplating rebuilding but who are interested in improving their own residences? A particularly effective

demonstration could be staged by leaving a portion of the old home in its original state, thus calling forcible attention to the difference in lighting and to the absence of convenience which formerly existed without the convenience outlet. The novelty of such an exhibit would attract unusual interest and would suggest to others the possibility of introducing modern conveniences into their own homes or of rewiring old houses for rent to make them more attractive and salable.

Facts About the Electric Range

ONE of the most constructive suggestions brought out at the recent convention of the Northwest Electric Light and Power Association was the proposal of the commercial section of that body to undertake a survey of the exact conditions surrounding the use of the electric range. An appropriation of from \$5,000 to \$7,000 was asked to pay for the expenses of such an investigation. The idea is to employ a man to devote his entire time to this work, making tests and investigations on the lines of any or all of the member companies, with free access to the records. Load conditions will be studied in districts where there is a heavy range load, where the load is scattered—and where there are no ranges at all.

Hitherto there has been little information available as to conditions in the field. Various studies have been made by companies about to enter active pushing of electric ranges—and most companies have analyzed their own conditions after the ranges have been placed upon their lines. This has never been exhaustively done, however, and the information is not available for others who wish to follow their example.

The suggestion has been taken up by the executive committee of the Northwest association and has been approved, although no money has been appropriated. It is expected to raise the adequate funds from the central stations and range manufacturers who are particularly interested in having this investigation made. The movement is one of the most progressive which has been undertaken in this field and it is greatly to be hoped that the necessary financial support will be forthcoming.

Eat More Toast— Electrically Made

BY way of an addition to our diet to balance Egg day, Raisin day, Prune day, Orange week and our various other nationally observed advertising feasts, there has now been announced an "Eat More Toast" campaign. The National Bakers' Association has fostered this movement in all parts of the country. British Columbia has already enjoyed such a movement, in which the power company and contractor-dealers joined. The date for the toast eating along the western coast has not yet been set, but will probably take place in the near future.

This is an opportunity for the electric toaster which should not be overlooked. Electrical merchants should keep their eyes open and when the date is finally determined, plan to tie in with the advertising which will be done by the bakers at that time. In California where the raisin people are looking for a wider outlet for their product, it might be possible to secure their cooperation and to give away an order for one or two loaves of raisin bread with each electric toaster sold. Nothing is more delicious than raisin toast—it should not be difficult to add to the slogans of "Eat More Raisins" and "Eat More Toast" the two words, "Electrically Made."

A Government by Editors

SOMEONE has suggested that all positions in state legislatures should by law be restricted to poets, thus saving from starvation those who submit verses at space rates to popular magazines and at the same time requiring no particular mental effort on their part which would otherwise disturb the elevated level of their thoughts. This provision has not yet been put into effect, so far as we know, in any of our commonwealths.

The editor, on the other hand, has come into his own. Glancing down the list of public officials, from members of the cabinet to such minor officials as state governor, members of the railroad commissions, pound master, highway boards and other state and city positions, we find that out of every ten public appointments which have attracted attention in this country recently, at least seven have been filled by editors.

We are not questioning the undoubted superiority of editors—we have long recognized the innate abilities of the caste above other mortals along all lines. It is a little puzzling, however, to mention the latest example, to know why the editor of a country newspaper should make a better harbor commissioner for San Francisco than would a man who was in some measure familiar with shipping problems. We do not wish to emphasize this particular editor above the others—he, as they, can undoubtedly handle their respective jobs. Is it possible, by any chance, that the strategic position of the editor in election contests has anything to do with it? Could it be that the selection of the holders of these high offices is affected by political considerations? Ah no, belonging to the genus ourselves, we prefer to consider it a tribute, a well deserved tribute, to the editor as such.

Who Has the Highest Dam?

CARTOONS showing the United States juggling figures to show that a vessel with smaller outer dimensions is actually the largest ship in the world are not particularly edifying. A not less animated spectacle could be derived from the sight of half a dozen irrigation districts claiming the highest dam in the world. Surely there can be no ground for

argument in the matter of a fact—and yet in spite of the recognized record of the Arrow Rock dam in Idaho, an article appeared in a recent business magazine entitled "The Highest Dam in the World," referring to the Don Pedro dam of the Modesto-Turlock Irrigation District under that heading. Occasional news items apply the title to various dams at different times. At the present time it is claimed for both the Exchequer and the Pacoima dam now under construction in California.

These variations are due to a confusion in the methods of measurement. The accepted engineering system of measuring the height of a dam is from the foot of the concrete poured to the topmost parapet—in other words, from bedrock. Measured in this way, the Arrow Rock dam is 348.6 ft. in height. No other dam now completed or under construction equals this figure. The Don Pedro dam, which is modeled after the Arrow Rock and except for its surroundings and the power house below might be photographed in its place, is somewhat higher above stream bed, but lacks quite a bit of the total height from bedrock. The other two dams are given as 320 ft. in height, obviously a stream bed measurement.

American temperament seems to enjoy having the largest of something. One college athlete became famous for inventing new races in which he became, for the moment, the champion of the world—until someone else tried to do the same thing and beat him at it. By this method of reckoning we can, of course, achieve a world's record with almost anything. There is, however, but one legitimate method of measuring dams—and it does not seem necessary as yet to change the picture postcards of the Arrow Rock which are sold on Idaho news stands.

New Possibilities of the Domestic Load

IT may be said that until recently the domestic load was the neglected child of the power company family. It was recognized as important, but in large measure it was allowed to take care of itself while the efforts of the new business department were devoted to bringing in industrial customers and in cultivating the commercial field. The other day one of the western power companies in an interior territory put on a six weeks' range campaign which produced an income amounting to \$30,000 annually for the company.

It is improbable that there is any undeveloped industrial load in that district affording a similar income which could have been secured with anything like an equivalent effort. If there were, it would be regarded as the grossest of oversights if the company had not made a special effort to secure the business. The power industry is not in the position of having to turn aside customers from its doors. It has power to sell and it faces the continual need of developing markets. Are not many of us still overlooking the possibilities of the domestic market as a major income producer?

CURRENT COMMENT



A decision affecting the power of a municipality to issue bonds for public enterprises has been recently handed down by the Federal District Court in Denver

Colorado Decision Affects Municipalities

in the case of the Franklin Trust Company of New York, as trustees for the Western Light & Power Company, a Colorado utility, against the city of Loveland.

The decision declared unconstitutional an issue of \$300,000 light and power revenue bonds and was in complete disagreement with the decision handed down by the Colorado Supreme Court.

The original suit, filed by the trust company as trustees for the power company in the sum of \$2,250,000, recited the history of the development of a municipal light and power plant for Loveland on the Big Thompson river, estimated to cost \$425,000.

The trust company claimed that the city of Loveland cannot enter into indebtedness of more than \$128,000, which is approximately 3 per cent of the assessed valuation of the city, and the limit of the indebtedness allowed the city under the constitution of Colorado.

The complaint recited that in May, 1921, the city council of Loveland passed an ordinance proposing the issuance of \$300,000 revenue bonds, to complete the plant. These bonds, it averred, are unconstitutional. It had already obtained the \$128,000 by earlier bond issues.

A motion to dismiss the suit, filed on behalf of Loveland, brought from Judge Symes the decision that the bonds were unconstitutional.

As far as the provision that the \$300,000 revenue bonds were to be paid back out of earnings of the light plant is concerned, they were constitutional, the court declared. It was when the further agreement with holders of the bonds, that the city would each year, from general sources, which would in the court's opinion mean from taxation, place \$5,000 in a special fund to meet the bonds was examined, that Judge Symes held them to be unconstitutional.

A portion of the decision which is particularly interesting in that it has a definite bearing on other municipalities in a similar situation, follows:

"This constitutional limitation on municipal debts is a very wholesome and wise provision, and for reasons of sound public policy should be supported to the full extent intended by the people when they made it a part of that solemn and binding instrument intended for the governance and restraint of public officials. I am very strongly of the opinion

that those who drafted the ordinance for these revenue bonds necessarily had before them this constitutional provision and that the ordinance is clearly an attempt not only to evade the spirit but the letter of the constitution."

The day is not far distant when the majority of the railroads of the country will pull their trains with electricity and coal and oil burning engines will be obsolete, in the belief of Samuel Rea of Philadelphia, president of the Pennsylvania Railroad, who recently issued a statement regarding the electrification of the nation's railroads after a trip over the electrified divisions of the Chicago, Milwaukee & St. Paul in the Pacific Northwest.

"I am convinced that this is the railway motive power of the future," he declared in a statement issued in Seattle. "There seems to be no limit to the loads electricity can pull. It gives a dependable, smoothly operating power."

Mr. Rea declared that electrification of railroads will come as fast as the roads are permitted to earn enough to pay for the cost of electrification, or as soon as traffic on the various lines warrants the change. Many of the larger eastern roads are electrified in a modified form. Electricity is used for bringing trains into some of the larger eastern terminal stations and for operating some of the suburban lines.

Free and easy talk by municipal ownership enthusiasts regarding the low cost at which electric energy can be supplied by hydroelectric plants built and owned by the public has aroused

Public Ownership the editor of the Portland Oregonian to comment at some length
Cost Figures upon a recent address by O. C.
Often Fallacies Merrill, secretary of the Federal

Power Commission, in which he showed the case for public ownership to be based on fallacies arising from popular ignorance. To quote from the editorial:

"Many applications for permits to the Federal Power Commission betray ignorance of simple elements of cost, both for construction and operation.

"The same gross inaccuracy is found in cost of current to the consumer, as estimated in a free and easy way by the public ownership optimist. As Mr. Merrill put it, they fail 'to distinguish between operating costs computed at the generator switchboard and such costs computed at the consumers' meters.' He showed how far they go astray by quoting the average costs of one of the large California electric utilities. The cost per kilowatt-hour was only 4.25 mills, but when the current reached the substation it had risen to 1 cent, when it

reached the general power consumer—the company which distributes to the individual consumer—it had reached slightly less than 2 cents, and when it came to the residence consumer it had grown to 7.4 cents. Only 6 per cent of the final cost was incurred at the generating plant and 88 per cent incurred between the substation and the consumer. A city which undertakes to provide electricity at a municipal plant has only begun to spend money when its dam and power station are completed and equipped.

“Public ownership faddists blithely overlook these facts when they compare cost at the generating plant with the rates paid by residence consumers and infer that there are millions in it for the corporation. Those who would stop short of public ownership pile taxes and impose restrictions on power companies, then wonder why power development does not go ahead. It does not occur to them that their figures are all wrong, and that the millions are in their minds. They tell the people how much can be saved to each consumer by building a municipal plant, and they become tangled in a maze of figures when they try to explain the discrepancy between promise and fact. But they cannot be held financially accountable, and the public has to pay for being guided by skilful talkers who do not know what they talk about.”

Labor in Arizona has taken a definite stand for the development of the Colorado River by private interests, according to a recent editorial in the State Labor Journal of Phoenix. Portions of the editorial are exceedingly enlightening especially when consideration is given to the stand taken by the labor unions of California with regard to the State Water and Power Act and other municipal and state ownership programs.

In expressing the attitude of labor with regard to the Colorado situation the editor comments on a proposal made by John C. Greenaway of Warren, Ariz. In a conference with several western governors, Mr. Greenaway had expressed the opinion that the only safe and sure way to begin the development of the power resources of the Colorado was to let private interests build the dams that are needed. He proposed that the state could insure its rights by contracting with these private interests to sell the projects to the government after a stipulated number of years.

After explaining Mr. Greenaway’s plan, the editor states:

“General Greenway’s plan is, in principle, the only feasible one presented. This is to say if the dams are built at a reasonable cost within a reasonable time private interests must be allowed to build them. We are not suggesting that any particular group of capitalists be allowed to build the dams. This is not important. But the dams must be built with somebody’s money by somebody who expects to gain something by building the dams. Great projects are planned and completed in this way; by somebody who has something to gain by planning and completing them. The ‘sovereign people’ never built a great project in the world’s history, but we, the people benefit, and our progeny do, by every great project private enterprise builds.

“Objection was made to the Colorado River Compact, by some of the gentlemen present, because ‘it was drafted in secret, behind closed doors,’ and the sovereign people didn’t have a look in.

“‘Many men are of many minds.’ The Constitution of the United States was written in secret, behind closed doors, and after its makers brought it forth to the light it took four years to get thirteen selfish little colonies to ratify it, but writers of all countries concede today, that our beloved Constitution is the greatest political document ever written.

“What we sovereign people of Arizona want right now, is some action on the Colorado River in lieu of the tons of bunkum about who we are and what we are and what our sovereign will and prerogatives may be.

“Action! We want cheap power, flood control, reclamation of millions of acres of our agricultural land. We want the rights of our state in our natural resources fully protected, but we believe that the John C. Greenaway plan to build the dams with private capital and sell them to the state later at their actual value is a good plan, a much better plan than the proposal to have Arizona change her constitution, bond herself enormously and undertake on her own part a program of dam building that is likely to become a pork barrel for political henchmen for the next fifty years to come.”

An interesting analysis of the 59,000 stockholders of the Southern California Edison Company is presented in a recent copy of “Edison Partners,” a quarterly bulletin issued by that company.

Edison Company Analyzes Its Customer-Owners In a table which is entitled “Who Are the Edison Partners?” the number of stockholders holding certain proportions of the company’s stock are listed. The table shows that by far the greater proportion of stockholders have an average investment of \$300. The table follows:

Stockholders	Average Investment	Total Owned
37,235	\$ 300	\$11,170,000
9,000	500	4,500,000
5,700	1,000	5,700,000
4,600	1,500	6,900,000
1,250	2,500	3,125,000
600	5,000	3,000,000
340	10,000	3,400,000
165	30,000	4,950,000
55	50,000	2,750,000
31	100,000	3,100,000
15	200,000	3,000,000
4	300,000	1,200,000
2	400,000	800,000
1	700,000	700,000
1	1,000,000	1,000,000
1	1,800,000	1,800,000
59,000		\$57,095,000

The stockholders are given further enlightenment as to who owns the company in another analysis. This shows that 34,000 of the consumer-owners are men, 23,000 are women, 1,250 are children and 550 are estates.

The above analyses are certain to have a favorable reaction on the stockholders, especially when it is pointed out to them that the majority of the stock is held in small blocks. The Southern California Edison Company now leads the central stations of the country in number of consumer-owners.

The government of the United States rates gas and electric utility company bonds next in order of safety to those of the various branches of the government, including national, state, county and municipal bonds. In a pamphlet entitled “How Other People Get Ahead,” issued by the United States Government Savings System, Treasury Department, there occurs this comment:

“All bonds are not safe investments. Bonds are rated according to the nature of the security behind them. First in order of safety come the bonds of the United States Government; then those of states, and of counties and municipal divisions. Then there are the bonds of railroads and public utility corporations.”

AN excellent example of artistic residential substation. The San Diego Consolidated Gas & Electric Company has adapted the Spanish style to harmonize with the surrounding dwellings.



Why Central Stations Should Investigate the Electric Truck

By Edward J. Power

Director Electric Truck Bureau, Pacific Gas & Electric Company

AS gasoline production has grown, multiplying twenty times in 23 years, so the use of electric current for transportation can be expanded proportionately. On 70 per cent of the hauling and deliveries in cities, the electric truck has proved that it gives maximum economy and efficiency, therefore this enormous potential market for electric current is ripe for development.

Those who know the electric, with its economies of operation, its dependability, its simplicity, and its ease of control are forced to the reluctant conclusion that because of the lack of COOPERATION between the central station and the electric truck manufacturers, the electric truck has not been holding its own in competition with the gasoline truck. How else can one explain the fact that in the United States there are about 12,000 electric trucks as compared with the hundreds of thousands of gasoline trucks? It is not because the gasoline truck is better. Where the gasoline truck and electric truck are operating in parallel lines of service in city transportation 75 per cent of the gasoline trucks could be replaced by electrics to the betterment of transportation as a whole and to the profit of their users. Why have a truck with a speed of 30 miles per hour when traffic laws and conditions will hold it down to about 15 miles?

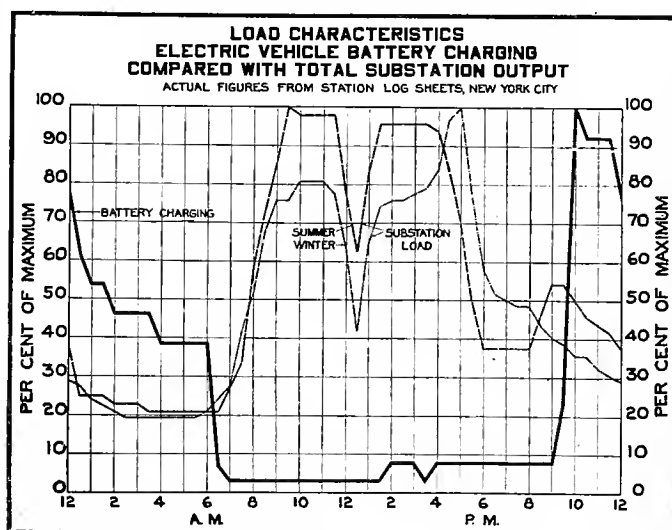
It is an economic shame that transportation costs are not investigated more fully by the average business man, for if this were done the manufacturer would in all probability be unable to fill his orders. So great an authority as Thomas A. Edison has made unqualified statements on this subject. He has said:

"I am pleased to learn that the electric vehicle for city traffic is receiving more attention from the electric lighting companies. Any merchant who keeps accurate costs will buy electrics."

Competent authority has asserted that 80 per cent of all gasoline trucks in New York City could be profitably replaced by electrics. In this district the average cash saving of electric vehicles has been determined at \$8 per day. Consider what this means. There are at present 12,000 gasoline trucks in the city of San Francisco. Suppose that instead of 80 per cent but 6,000, or 50 per cent of these were replaced by electrics. In order to be sufficiently conservative let us say that the saving would not be \$8 per day, but \$4. Multiplying 6,000 by \$4 we have \$24,000, which extended over three hundred working days yearly, becomes \$7,200,000 or the interest at 6 per cent on \$120,000,000. In other words, the supposedly astute San Francisco business man is allowing the interest on \$120,000,000 to slip through his fingers yearly. Central station executives can help solve this problem by whole-heartedly leading the

way and assisting in cutting down the excessive delivery costs that are today robbing so many merchants of their just profits. The possible absorption has scarcely been touched by the central station as yet, although a very decided beginning has been made, and it is quite necessary that activities along these lines be not only continually maintained, but greatly extended.

The many reasons why the central station should use, endorse, and diligently promote the electrical motor truck are too numerous to specify in



The advantages of electric vehicle battery charging as a central station load.

this article, but the one reason which predominates and is of paramount importance by its very nature is the revenue which may be derived from the sale of current for charging purposes.

If we were all enthusiastic about the electric truck a few inspiring facts would convince us that we are connected with a branch of the electrical industry that is bringing material economies to business and which presents corporate and individual opportunities, conferred by few, if any, of the other branches of our industry.

Take the central station, for example. It can look for further development and more intensive use of electricity from two sources:—

- (1) The natural growth of the territory served.
- (2) The more intensive use of electricity in industries, homes, etc., already existing.

In the first case, the central station is relatively powerless. In the latter case it can accomplish much. New business managers of all central stations are on the lookout for new fields for business, and yet how often is the appliance overlooked which uses more electricity in a year than any other electrical device

yet made, namely, the electric truck. However, times are rapidly changing and the business developers of central stations are investigating and exploring this field. Seventy-five central station companies in the United States are now using an aggregate of 1,100 electric trucks.

As far as the overhead cost of operating the central station itself is concerned, it is realized that the cost of the transportation department is a very small percentage of that total operating cost, but, nevertheless, the electric truck is receiving more and more attention from executives than it has in the past year. By using electric trucks these men are learning that not only would they be placing their transportation departments on an economical and

It is of interest, therefore, to learn that the consumption of electric energy for charging purposes at the garage of the American Railway Express Company, 42—2nd St., New York City, for the year 1922, was 1,646,789 kw-hr. This is more than ten times the amount of current which an average ten-story office building will require for light and power and five times the consumption of a modern hotel of similar volume with an equal connected load.

Such a single consumer is more valuable than 3,000 to 4,000 average residence consumers even though they be on a rate two to three times as high. In addition, the company securing the business has only the cost of servicing one customer, as against 3,000 to 4,000. In further substantiation of the



Samples of the electric truck literature used by the Pacific Gas & Electric Company.

profitable basis, but they would be setting a good example to possible purchasers. This latter is more important from our point of view because the use of electric trucks by the central station is the entering wedge which must result in their final adoption, locally, because of the fact that the central station is conceded special knowledge in matters electrical and by adopting this form of transportation it can be counted on for its fullest cooperation to develop business. To further substantiate the above statement it might be mentioned, in passing, that central stations and public utility corporations have, during the past twelve months, purchased approximately 200 electric trucks.

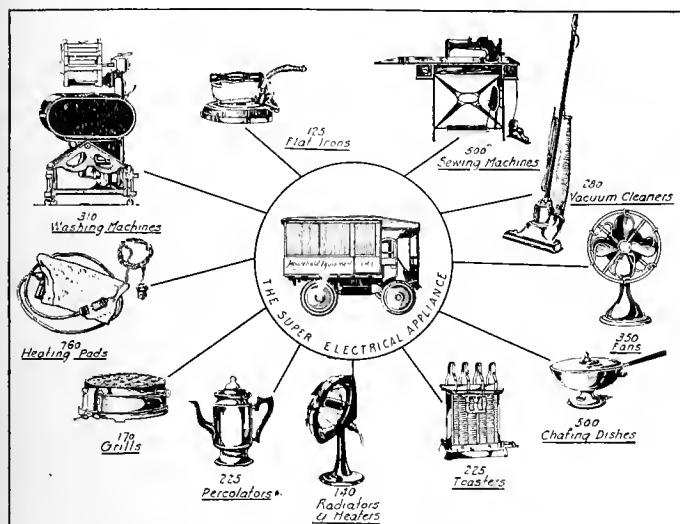
The value of the electric truck battery charging business is clearly brought out by comparison with the electric requirements of other businesses on a building volume basis with a similar connected load.

value of such a load, one bright statistical genius reminds us that 4,000 average sized residences if strung in one line would occupy a street 25 miles in length. I will not dwell on the materials, construction, bookkeeping and other work that would be entailed in serving such a community.

The above figures have dwelt with kilowatt-hours and not dollars, but to set at ease those interested, and quite naturally so, the cost to the American Railway Express Company was approximately 3 cents per kw-hr. This same opportunity presents itself to central stations on the Pacific Coast, but possibly to a smaller degree.

It is with a growing appreciation of the service, achievement and possibilities of the electric truck that the Pacific Gas & Electric Company has established an electric truck bureau.

The fact that the electric truck has been universally endorsed throughout the United States by grocers, bakers, ice cream manufacturers, department stores, draymen, parcel deliveries, laundries, dairy deliveries and ice dealers, is only one reason



During one year the central station will derive as much revenue from the electric truck as it will from the gross total of all of the appliances shown grouped around the truck.

why central stations should diligently go after this most desirable load, electric vehicle battery charging, to fill in the "night valley."

The Pacific Gas & Electric Company is analyzing its own transportation problems and is committed to the policy of using electric trucks wherever possible.

The electric truck bureau of that company holds itself in readiness to furnish any and all information about electric trucks and the bureau's transportation engineer is always available for consultations regarding cost data, performance, figures, operating expense, routings, etc.

From every angle the electric vehicle should appeal to the central station and should prove a real benefit to the industry. In this work as in every other there is no time like the present, and in connection with the N.E.L.A. slogan, "ELECTRIFY," it would be well indeed if the central stations made a determined and united effort to promote the sales of electric vehicles to a much greater degree than has previously been the case.

Novel Automatic Business Directory Placed in Hollywood

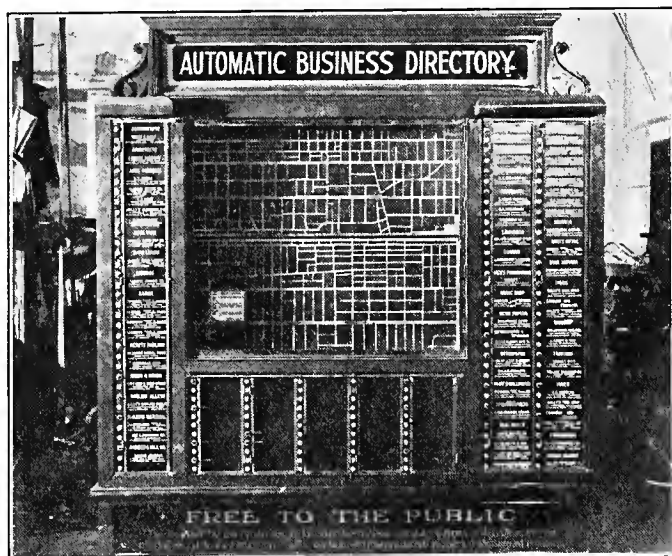
ONE of the very latest types of directories is now in use by the citizens of Hollywood, and is located on Hollywood Boulevard, in front of the Chamber of Commerce Building in the thriving motion picture metropolis. Besides being a directory for the information of the citizens of that city and the strangers within its gates, it is of immense value as an advertising medium for the merchants and business men of Hollywood.

The Automatic Business Directory shown in the accompanying illustration has 155 advertising spaces on it, each space being $1\frac{3}{4}$ in. by $7\frac{1}{2}$ in., in addition

to 30 free spaces which are used for points of interest such as Public Libraries, Emergency Hospital, Club Houses, Police and Fire Stations, etc.

This type of directory will be installed in various parts of Hollywood, and for each locality a map is made on a board according to the layout of that section as shown in the illustration, which shows Hollywood Boulevard from one end of the city to the other as well as the other important thoroughfares. On the map is located a green electric lamp at the exact location at which the directory is to be installed, so that standing in front of the directory this green light, which is always lighted, designates the spot at which you are standing. Opposite each advertiser's name, according to classification, is a press button connected by wire to a red miniature electric light; this light is located on the directory corresponding to the location of the advertiser's place of business, so that when you press the button the red light immediately shows you the location of that particular advertiser.

To illuminate the board so that the map is always visible, electric lights are placed at points of vantage on the frame of the directory. Service at 110 volts is used for all lights to illuminate the board as well as the green light designating the location of the board, whereas the miniature red lights are three-volt lamps, the current being reduced by means of transformers. For the purpose of illumi-



One of the automatic business directories which are to be set up at conspicuous points throughout the city for the convenience of those desiring to find the location of business houses in that district.

nating the directory at night there is a time switch which automatically turns the lights on and off at the proper time.

This Automatic Business Directory which has been dedicated by the "Progressive Banking Institutions, Business Firms and Professional Business Men of Hollywood to the Strangers within her Gates, who come by thousands in search of pleasure and investment," was designed and manufactured by Otto K. Olesen of the Studio Lighting Service Company of Hollywood.

Wild Editors---Their Cause and Cure

GEORGE FITCH once described an editor as "A tired, nervous man, who spends his nights getting things into the paper, and his days in explaining how they happened to get in." Of course he referred to a newspaper editor, but the same thing applies to any kind of editor. All editors are tired and nervous, not to say temperamental. A certain famous publisher, who has dedicated his life to the service of industry through the printed page, says that some day he is going to write a book entitled "Wild Editors I Have Met." Therefore, the authorities have it that editors are at once tired, nervous, temperamental and wild.

Here we have an effect, a quadruple effect, as it were. Let us search for the cause, or causes. Let us isolate the germs of fatigue, neurosis, temperament and wildness. Let us make a lantern slide of them, and, with the aid of our trusty microscope, see what this organism is like, and, what is more important still, determine from whence it comes, who are its father and mother.

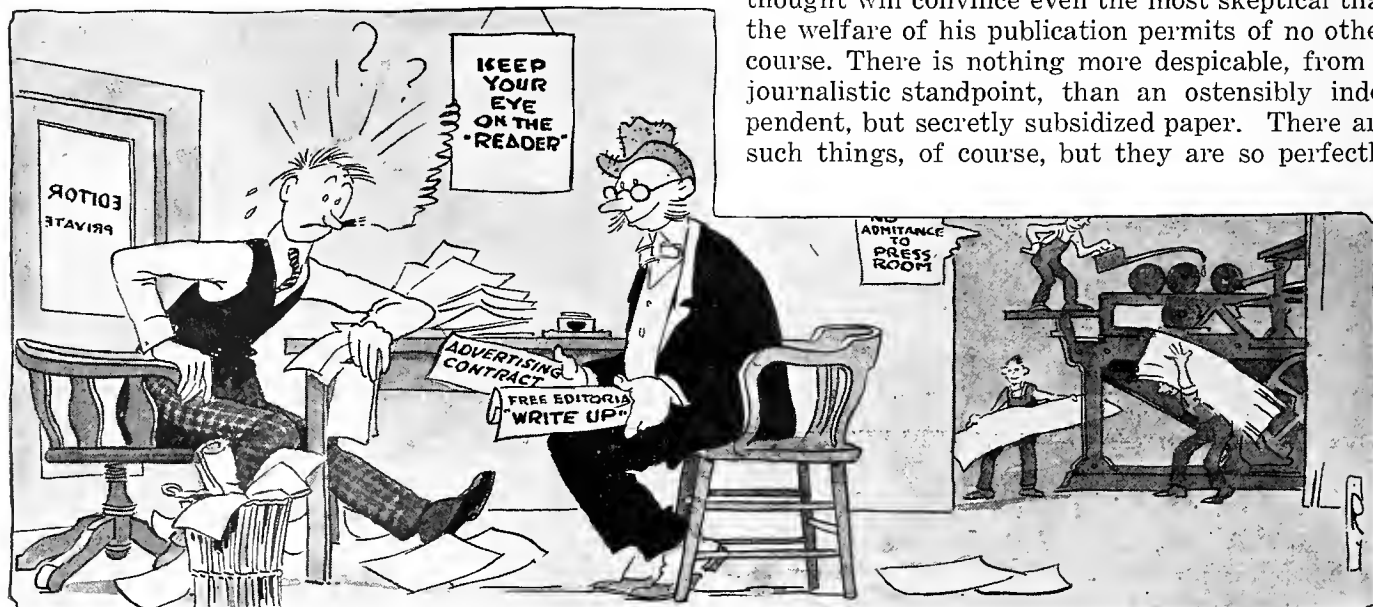
Speaking in generalities, the business paper consists of two major parts, an editorial section and an advertising section. Both are intended primarily for the service of the reader. They are the Gold Dust twins that do your work and do it well if they are intelligently directed. It is most important that it be understood that the measure of usefulness of a business paper or any other kind of paper is the value of its service to its readers. The best advertising medium is the paper that considers the reader first, last and all the time. "Keep your eye on the ball" is the slogan of the golfer. "Keep your eye on the reader" is the watchword of the editor.

There are those on the outside looking in who are prone to have some strange ideas of the editorial function. The publishing of a technical paper is a manufacturing process, the product in the case of the reader being the selected news of the industry, the survey of progress in all lines of thought which

affect his particular field, the impartial and honestly critical presentation of controversial questions giving him a trustworthy basis upon which to form his judgments. For this service, he gladly pays his subscription price. The advertiser, on the other hand, receives in return for his payment, a selected audience, access to the ear of a given market.

What is often not clearly understood by the outsider is that utter impartiality and independence of judgment are prerequisite to both these services. The reader who feels that any criticism of the organization to which he belongs or the city in which he lives or the thoughts which he may happen to think is a personal matter which can be answered only by a cancellation of subscription, can have no real conception of what he is doing. The very thing which makes the paper of value to him, as he will recognize and acknowledge on all issues not clouded by personal feeling, is its attempt to furnish constructive criticism. Without constructive criticism the world would stop. Without constructive criticism, through which, by the aid of widespread publicity possible only with the printed page, discussion is precipitated, we would be bemused and befogged continually with a maze of half-baked ideas, out of which nothing but trouble would come.

In this day of keen competition, trade rivalries are intense. The duties of the trade paper, its responsibility to its field as a whole, must of necessity make it absolutely non-partisan. It is not concerned with whether one manufacturer or central station or contractor-dealer is awarded more space in column inches than is another—it is concerned with news, impartially selected from the standpoint of the interest and value to the readers of the paper. The editor is trying his level best to print the news of the trade that the trade may know and profit thereby. News is news just as surely as pigs is pigs—and he selects his material according to his best judgment from that standpoint only. A little thought will convince even the most skeptical that the welfare of his publication permits of no other course. There is nothing more despicable, from a journalistic standpoint, than an ostensibly independent, but secretly subsidized paper. There are such things, of course, but they are so perfectly



obvious that there is no mistaking them after a few numbers have been issued.

There have always been on the fringes of respectable journalism so-called "trade" practices which, in the view of the present day conception of the responsibilities of a publisher, were not merely unethical—they were bad, thoroughly bad. For instance, there was the idea that in exchange for a page or so of paid advertising, the advertiser was entitled to demand some additional pages of free advertising thinly disguised as editorial matter and published as such—in other words, a "write-up," so called. This sort of thing is a boomerang that reacts unfavorably on publisher and advertiser alike, yet there are still some people who have not found this out. Haply, they are few and are becoming fewer, which is a consummation devoutly to be wished.

Most of the large industrial organizations maintain publicity departments through which news of their individual concerns is disseminated. Material of this kind finds a ready welcome from the editor. He is glad to get it, and to use such of it as, in his opinion, is of constructive benefit to his readers. He selects it from this viewpoint solely, and edits it as carefully as he knows how, to suit the field of his paper and the requirements of his reader. Certain important factors govern his choice. In the case of the Journal of Electricity, the question of geographical interest is one of the primary requirements, only such items as have a western bearing being acceptable for its columns. Enough publicity matter is received from individual organizations to fill each issue several times over, if all other matter were excluded.

Then there are the firms and individuals, who, by letter, memorandum, or word of mouth, contribute many items of news not available from any other source. The editor freely acknowledges his obligation to them, in fact, editors are dependent upon their friends to a great degree for that little personal touch without which a publication is flat and lifeless.

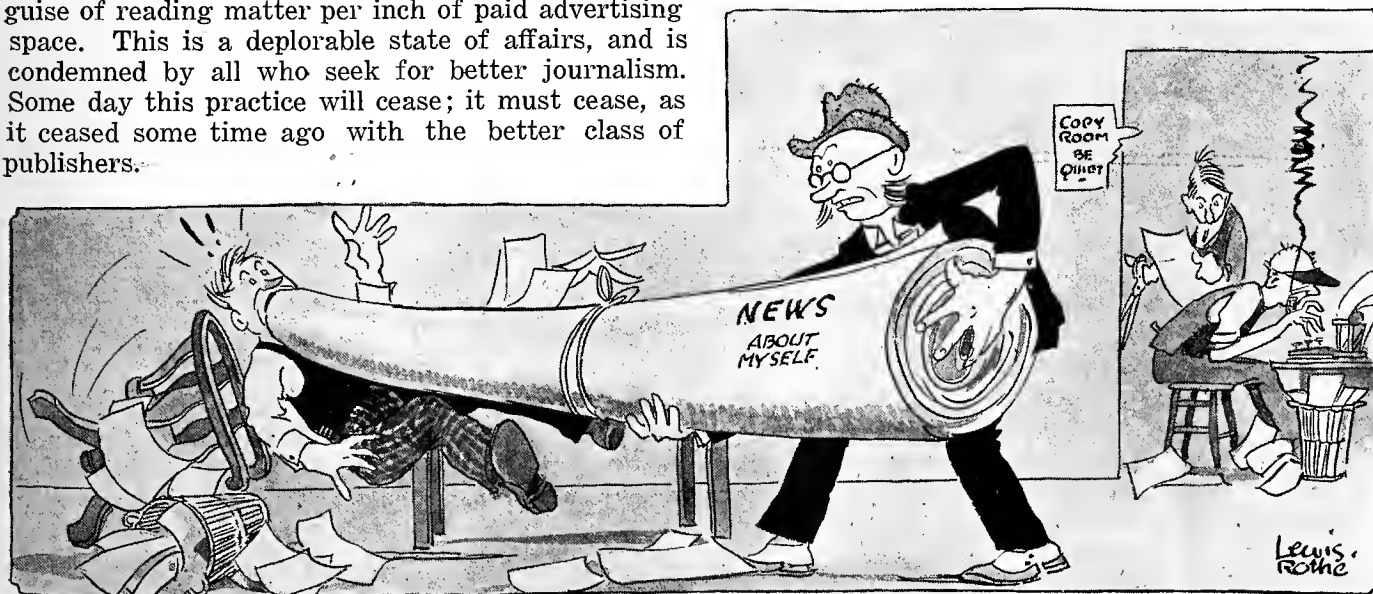
It is said that newspapers make it a practice to give a certain proportion of free advertising in the guise of reading matter per inch of paid advertising space. This is a deplorable state of affairs, and is condemned by all who seek for better journalism. Some day this practice will cease; it must cease, as it ceased some time ago with the better class of publishers.

We have in the United States a pure food law, which requires that all labels must state the truth as to what lies within the attractive exterior of the can, or other container. It is hardly less an evil to deceive the mind than to poison the body. There is also a law that all paid advertisements appearing in other than the advertising section of a publication be plainly labeled as such, but the free "write-up," given in consideration of paid advertising, still goes without any label which would permit the reader to know what is being done to him.

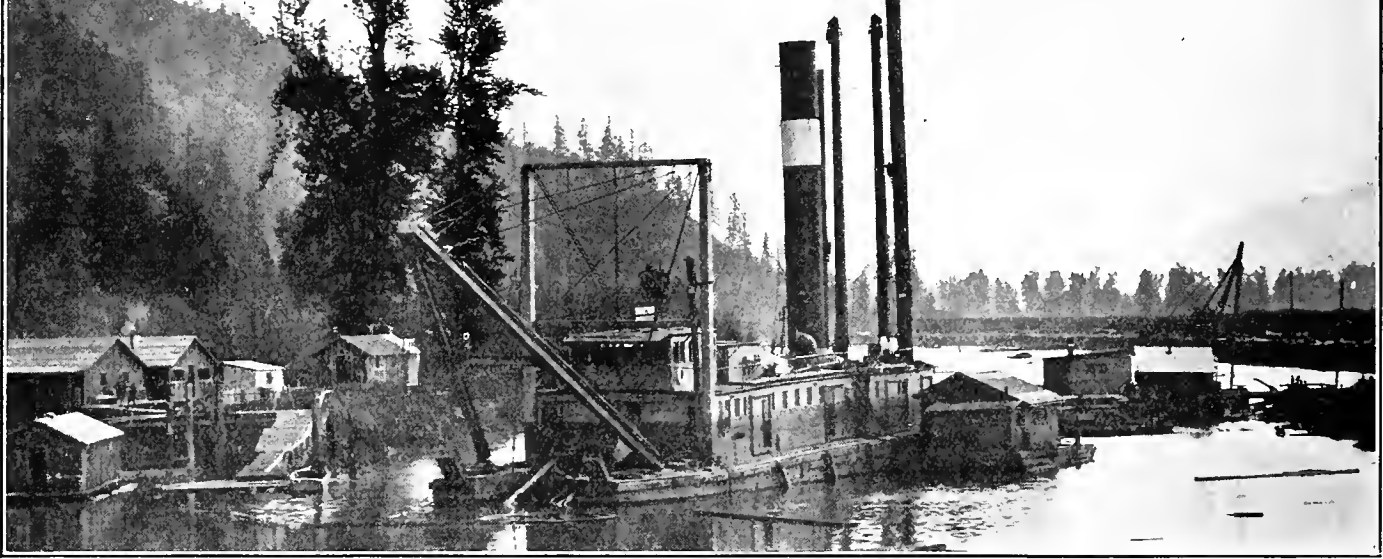
It has often been said that there is in the technical magazine a particularly close relationship between the advertising and the reading matter. This does not mean that there is any lowering of the integrity of editorial independence in such a magazine, but merely that the reading matter, from the very nature of its scope, discusses the same subjects, from their technical angle, as the advertiser calls to the reader's attention as a sales proposition.

Truly, it takes a real man to be a real editor, even though he be at times tired, nervous, temperamental and wild. He must be resilient even beyond the ordinary elastic limit, against all sorts of pressure brought to bear against his better judgment. He must be deaf to every consideration other than the best interests of all of his readers. He must automatically refrain from indulging in the very human tendency to play favorites. He is a judge, not an advocate. He must stop, look and listen, then weigh carefully the mass of material which comes before him, separate the wheat from the chaff and serve it up, piping hot to thousands of people scattered over a large geographical area. And if his job be worthily done, his readers will appreciate the service and his magazine will become a valuable medium to the advertiser.

The next time you see an editor, speak kindly to him. Take him by the hand, even. He is working for you. He is giving you the best he has. If you happen to like something he has done, don't hesitate to say so. He will be humbly grateful—for even editors are human.



Electricity in British Columbia Reclamation Work



ELECTRIC power is bringing under cultivation in British Columbia 34,000 acres of land by a novel and interesting means—namely, by reclaiming it from a lake bed and by stemming back tidal water. This work, which is now nearing completion, is the Sumas Reclamation Scheme of the British Columbia government, situated fifty miles from Vancouver in the Fraser Valley. Parts of the Fraser Valley are subject to tidal floods while the Fraser River, during the summer season, inundates other sections. Sumas Lake, a huge shallow body of water 12,000 acres in extent, occupied the center of a large fertile area and around it were 22,000 acres of land which were flooded annually at the season of high water, making it impossible to sow crops of any nature or use the land for other than grazing purposes. Dyking schemes and seasonal pumping plants are common in lower British Columbia and as far back as the early eighties pioneers of the Fraser Valley had given thought to the reclamation of Sumas Lake.

The work of stemming the waters of the Fraser River has been discouraging both at Sumas and elsewhere in the Fraser Valley. Farmers have been flooded out time after time but with renewed confidence they have tackled Sumas Lake and are determined to succeed. Huge dykes and dams have been built by electric power furnished by the British Columbia Electric Railway Company and when com-

By James Lightbody

Publicity Manager,

British Columbia Electric Railway Company, Ltd.,
Vancouver, B. C.

A unique plan, in operation, has saved and will bring under cultivation thirty-four thousand acres of fertile land. This is all made possible by electrically operated equipment.

pleted electric pumps, capable of discharging 1,000 gallons a second, will keep the area dry. This large, fertile area will then constitute the only section of land in British Columbia actually reclaimed from water.

In the spring of 1922, when the dykes were well on towards completion, the farmers of the vicinity thought they would be high enough to keep their lands

dry and some of them put in crops. The waters broke through and washed out the barriers, but the engineers claim that has happened for the last time and that the dams and dykes are now strong enough for the elements at their worst.

Settlers are already coming into this part of the valley and establishing homes while farmers in the lands which will no more be flooded are sowing grain, thus making their lands more valuable.

A townsite will be laid out in the center of the reclaimed tract and it is expected that a total of approximately 7,000 persons will eventually be living within this area. Opportunity will be afforded for the erection of creameries, canneries, etc., which may be electrically operated.

The cost of the plan, which had the support of the Vancouver Board of Trade and of other public bodies, was estimated at \$1,250,000, but will probably run about \$2,000,000. Part of the cost will be defrayed out of the sale of reclaimed land, while a part may be assessed against owners of the adjacent land, who will benefit from the project.

The work of reclamation has been an electrical feat from the very start. The B. C. Electric Railway's Chilliwack line, 34,000 volts, skirts the shores of Sumas Lake and arrangements were immediately made to tap this line for the operation of one 1,250-hp. suction dredge and two drag line dredges of 150 hp. each. These dredges have done all the work in building the twenty miles of dykes involved in the project.

Sumas Lake is fed by a number of small streams and the turbulent Vedder River. It was first necessary to keep the Vedder within bounds and dykes 58 ft. thick at the base were therefore built along each bank and out through Sumas Lake towards the Fraser River, making a canal 300 ft. wide and 6 miles long. Other streams were dyked and led to

class of material, width of swing and general digging conditions.

The use of electric power started on March 21, 1921 and up to February 4, 1923, the consumption of current was as follows:

Suction dredge	6,134,200 kw-hr.
Drag lines	95,440 "
Quarry	278,500 "
Preliminary work	46,100 "
Total	6,554,240 "

The charges made by the British Columbia Railway Company using their regular schedules were \$55,209.84 or an average price of 0.842c. net per kw-hr.



Dam and pumping station, Sumas Reclamation project in the Fraser Valley, fifty miles from Vancouver, B. C.

the main dam and pumping station. While the Vedder river flows directly into the Fraser, other streams such as McGillivray creek, Sumas and Marshall creeks are pumped up by electric power.

The main dam is of concrete, standing 52 ft. high, and excavation was carried 40 ft. below the surface.

The dredging of the main channels has been done by the 20-in. suction dredge "Colonel Tobin." Of the total load on this dredge of 1,250 hp. under normal conditions, 1,000 hp. was connected to the main pump. The engineers for the project estimate that the amount of power per cubic yard ranged from 0.8 to 1.7 kw. and the output ranged from 250 to 1,200 cu. yd. per hour.

It is claimed that by operating the dredge electrically, material is pumped a much greater distance without boosting than could be done by steam power.

The electrically operated drag lines had a capacity of 75 to 150 cu. yd. per hour, depending upon the

The main dam pumping station will comprise the following power units:

Two motors, each developing 1,250 hp. at the highest speed and 850 hp. at lowest speed.

Two motors, each developing 485 hp. at the highest speed, 320 hp. at medium speed, and 240 hp. at lowest speed.

Three 10-hp., six 7½-hp. and two 2-hp. motors. Total, 3,549 hp. at highest speed.

It is believed that this maximum will be used only very occasionally. The maximum demand in winter is not expected to exceed 2,800 hp. and this only once in two or three years. The average maximum both summer and winter in an average year will probably be approximately 2,500 hp.

When the reclaimed area is settled, there is expected to be a considerable demand for electric power by the farmers for lighting and for operating farm machinery.

Making the Appliance Campaign a Success

By M. L. Cummings, Jr.

IN a sense, every day in the year is a sales campaign for the retail store, in that every effort is made daily to sell goods. The special campaign is a concentrated effort, however. It is like a race as compared with an ordinary fast walk for getting over the ground—it brings results in a very short time, but it is too stiff a pace to maintain as a regular thing.

What elements go into the making of a successful campaign? It is not enough to reduce the price and run a series of newspaper advertisements announcing that a special sale is on. There are many angles to selling success and each of these must be intensified if the desired results are to be attained.

The Utah Power & Light Company has for some years conducted a yearly campaign on electric washing machines. There is already considerable concentration on their lines, one in every five of their 63,000 residence consumers owning a machine. It was nevertheless possible for them to sell more than 1,100 washing machines during the month of March of this year. Their methods of conducting a campaign are based on experience and are illuminating as suggesting how the sales organization and the public alike can be kept up to the pitch of sales interest which is the salient feature of a campaign period.

Stimulating Interest Among the Selling Staff

The factor of interoffice competition is one of the best methods to stimulate activity within the company. A bogey of 1,000 machines was fixed for the entire territory and this quota was then divided among the seven territorial divisions, on the basis of past experience and the number of consumers represented. Rivalry was then called into play by offering a cash prize to the division first exceeding its quota. In order to sustain the interest past this point and to offer more inducement for effort, cash prizes were given all divisions exceeding their bogeys, and also to the division exceeding its quota by the largest percentage. This competitive factor proved to be a very strong item in the success of the campaign.

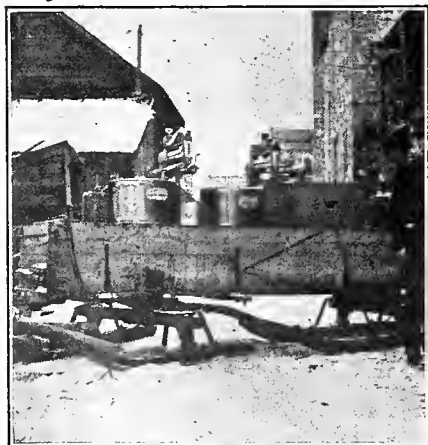
During the heat of the contest, daily reports were received by the general sales department from the company's various divisions as to the progress of sales and the general sales department in turn forwarded daily bulletins to its division managers and sales people showing the relative standing of each division. This kept the enthusiasm and rivalry at a high pitch throughout the campaign. Daily sales letters were also sent out from the general sales department, encouraging all those actively engaged in sales to use their utmost energies in the cause.

About thirty-five people were actually engaged in the selling of washing machines, including some office employees who devoted a part of their time to this work. The major effort was placed upon outside work, all but twelve of these workers concentrating upon canvassing, demonstrating and other outside effort.

In addition to the company's own efforts in this field, many of the dealers in the company's territory featured similar drives during the month of March.

Special Inducements Interest the Public

Besides the methods outlined to call forth the highest efforts of the employees of the company, it was necessary to interest the public. The first necessity was the choice of a reliable type of washing machine and in this matter the company relied upon its experience in previous years and used the same machine which had already been established and recognized in their territory. Reasonable terms were the next item for consideration. It was not felt advisable to reduce the price of the machine in any way, but extremely attractive terms were offered for time payments, the initial payment required to secure a machine being not more than \$1 down, with \$5 a month on installment. It was felt that the greatest psychological resistance factor met with in the sale of the larger electrical appliances is the question of the large initial investment. By making this payment nominal, with the monthly installments



Considerable attention was attracted by delivering washing machines on sleds.



A parade of trucks up the main street testified to the number of washing machines which made up one day's sales. There were seventy washers in the parade.

really not larger than would be the usual laundry bill, it was found possible to eliminate this feature almost entirely. The offer, of course, held good only during the period of the campaign.

The value of the slogan as advertising coinage has long been recognized. It is this feature of an advertisement more than any other which persists in the minds of the reader, as witness the wide familiarity of such terms as "It Floats," "Eventually—Why Not Now?" or "The Nose Knows." In conse-



One of the effective show windows in the Salt Lake City store of the Utah Power & Light Company during the washing machine campaign.

quence, a slogan was chosen which formed the center of all advertising. This was the already familiar "A Copper Washer for a Silver Dollar" which had been so successfully used during previous years. This was featured very successfully in newspaper advertising and other publicity. The newspaper copy was prepared largely with the idea of selling the machine on its merits, its outstanding features and the record of its past performance, the fact being stressed that there are now more than 12,000 of these machines on the Utah Power & Light Company's lines. Convenience, labor-saving and money-saving were also played up.

In addition to the newspaper publicity, considerable direct-by-mail advertising was done and the direct appeal of the store window was used to its fullest extent. In this as well as in the published "ads," the slogan and the time payment feature of \$1 down were emphasized.

Spectacular Advertising Is Employed

Not the least effective method of bringing the washing machine campaign to the attention of the

public was the stunt advertising which took every conceivable form. The variety of the avenues of approach as well as their novelty took the public fancy. On the idea that an appeal repeated in the same way becomes monotonous and ceases to attract attention, but that the same appeal coming from different sources in different ways gathers on the contrary an increasing emphasis, no method of mentioning the Copper Washer on sale by the Utah Power & Light Company was overlooked.

A parade of several truckloads of washing machines was held on Main Street, Salt Lake City. Seventy machines were included in this procession, representing one day's sales—and so labelled, giving an idea to the public of the extent of the campaign and the interest being shown by others.

Banners were used on street cars, company automobiles and trucks. Wherever the housewife looked was somewhere a reminder of the great opportunity awaiting her at the Utah electric shop. Billboard advertising was used throughout a large part of the company's territory. Freight cars loaded with washing machines were placarded as to their contents and destination. Caps bearing the slogan "A Copper Washer for a Silver Dollar" were distributed to a thousand newsboys and others.

In place of using the side or rear entrance for the delivery of the washing machines, the front doors of some of the company's stores were used. Ordinarily, the confusion and the blocking of the pavement would be considered a drawback to business, but on this occasion it was felt that the tremendous activity in washing machines thus made public would help to attract attention. The very fact that this sidewalk had always hitherto been clear would



A carload of washing machines placarded with advertising banners made an effective publicity stunt.

emphasize the bustle and activity now blocking it, leaving in the mind of the passer-by the impression, "My, these people must be doing a big business."

All of these campaign methods stimulated local interest and opened up the way for the real selling of the drive. These things are merely preliminary, however—and the success of this month's concentrated effort, as is that of any campaign of this nature, may be credited principally to the enthusiasm and intensive selling effort of the company's entire sales organization.

Floodlights Bring Out Beauty of Utah Cavern

TWO miners, in the summer of 1915, were prospecting high up among the cliffs of American Fork Canyon. The small son of one happened to stand on some loose rock at the foot of a steep limestone ledge. The rock gave way and let him down into a small opening. He called to his father, and the party becoming curious, followed the opening into a small tunnel just big enough to crawl through. It resembled a chute and landed in a dark cavern about 20 ft. below the entrance.

The beauty and uniqueness of the cave soon became apparent. These men immediately located it as a mining claim, proposing to keep it secret and later extract and sell the onyx and fantastic formations.

The secret was well guarded for five years. In 1921, however, due to remarks dropped unwittingly by members of the prospector's family, rumors circulated about this wonderful cave. It was immediately set aside as a Public Service Site, thus preserving it for public use for all time to come. The mining claims covering the cave were investigated and found invalid.

A guard was stationed at the entrance to keep all people out until they could be conducted through safely and without injury to the cave. Public spirited citizens assisted in securing the necessary appropriation to install a door which could be locked, thus preventing vandals from devastating the cave.

The Forest Service later constructed a trail from the auto road to the cave, opened up the passageways inside, bridged the crevices, and placed stairs in the dangerous caverns. The people of American Fork and Pleasant Grove appointed a committee to raise funds for installing electric lights. They were assisted materially by the Utah County Commissioners and the Wasatch Mounted Club and in the summer of 1922 Dana Parkinson, Forest Supervisor of the Wasatch National Forest, who has jurisdiction over the Timpanogos Cave, requested H. T. Plumb to make a survey of the cave and submit full detailed report as to the best method of correctly illuminating it.

Some of the difficulties encountered in the lighting of the cave were the hiding of the conductors and the selection of a type of distribution which would withstand the extremely wet conditions of certain portions and which would lend itself to installation amongst the very rugged and intricate formations of the cave.

The cave was originally wired by means of a conduit system. This system was ordered dismantled and feeders consisting of three-conductor lead and steel-armored cable were substituted. These main feeders were terminated in distribution panels, mounted in waterproof pedestal cabinets, and installed at convenient places so that the guide might light up a series of rooms before taking a party into

them, and, by controlling the various circuits, might produce different color schemes and individual illumination of particular objects.

There are approximately six large rooms. Each room was treated according to the general nature of the formations appearing therein. In the majority of the rooms, the crystal formations which cover the walls and ceilings are so delicate and finely formed that it was decided to locate all outlets and run all conductors underneath the floor of the cave, or,



One of the scenic columns in the cave.
Note the elbow and junction box.

where the hard, rocky formation of the floor could not be pierced, to cover the cable with rocks and in other ways conceal it.

Two-conductor armored-lead cable was used to feed each particular circuit and each circuit terminated in a 4-in. outlet box covered with porcelain receptacle. After all the joints were properly made, the outlet boxes and junction boxes were poured full of pot-head compound. The cable as a whole was painted with compound to make it withstand the erosion of the moist earth with which it may come in contact.

The general illumination of each room was furnished by placing reflectors at hidden sources to illuminate the walls and ceilings, there being sufficient reflected light to give illumination for walking along the passages.

In order that the guides may be able to call attention to some of the special features in each of the large rooms, a floodlight is permanently mounted in the center of the room, upon a 4-ft. pipe stand. The guide, in explaining the details of the beautifully tinted formations and structures on the ceilings and walls, spots the object with the floodlight, bringing out the color and detail in the most effective manner possible while describing it.

Only about one-third of the cave has been properly lighted at the present time, but work is in progress and very shortly the other passages and rooms of the cave which are not now open to the public, will be completed. In several places, lights are being installed to shine through the translucent formations so that they are seen by transmitted light, as well as reflected light. Particular installations are known as the "Frozen Sunbeam" and the "Great Heart of Timpanogos." In other places colored lights have been arranged to shine upon otherwise hidden pools of water, bringing out their crystal clearness and sparkling beauty.

Since the regulations of the cave prohibit the taking of flashlight pictures, the installation of the floodlights in the various rooms has made it possible for visitors to secure pictures with their own cameras. Practically all of the pictures which have been taken of the various formations have been taken by means of time exposures, the object being illuminated by concentrating the beam of the floodlight

upon it, the exposure taking from three to eight minutes, according to the nature of the camera.

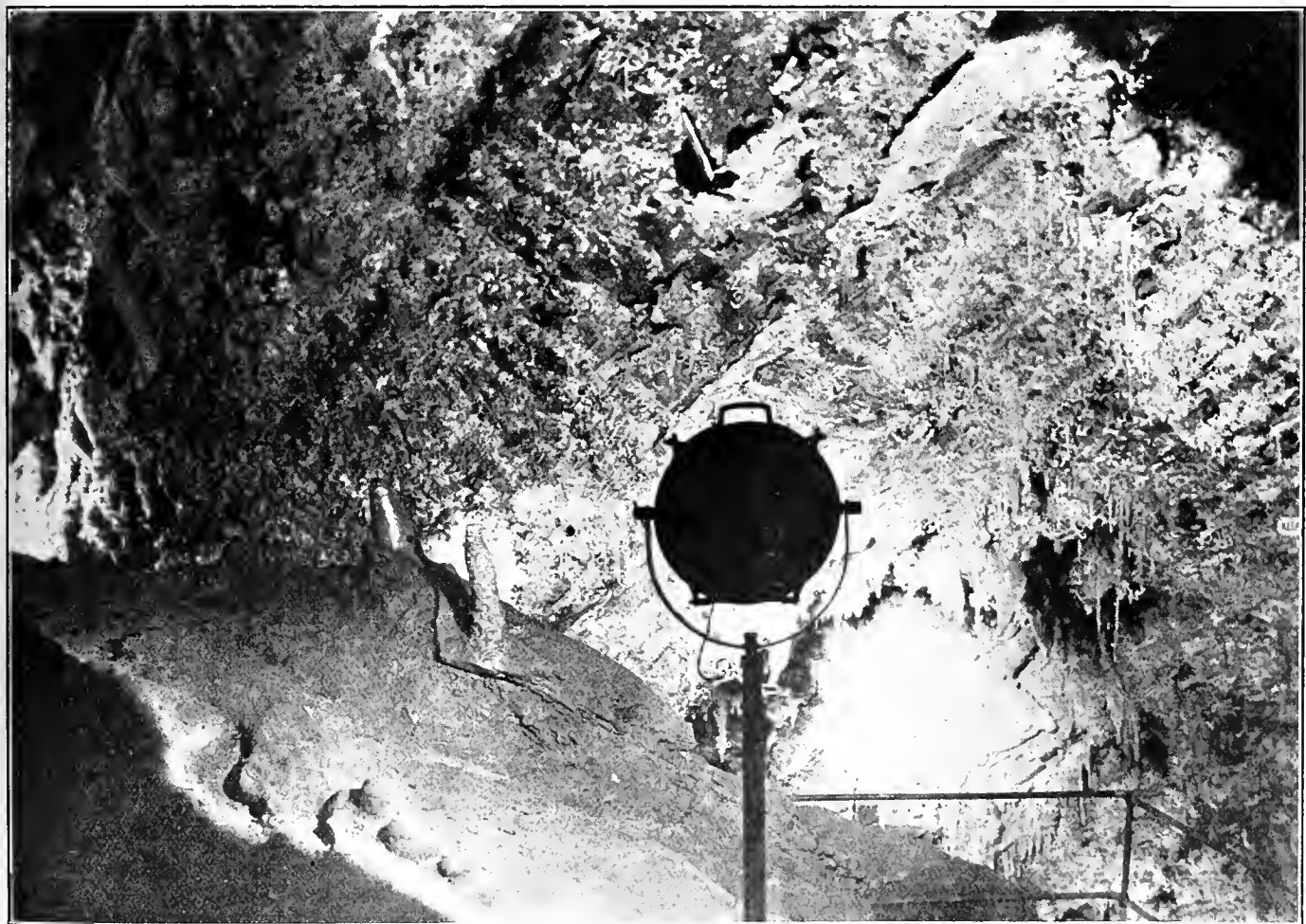
The wonders of the cave cannot be described, nor do photographs begin to show the infinite delicacy and fineness of the crystal formations which literally adorn every square inch of the walls and ceilings of the innermost parts.

The scenic value of the cave is dependent entirely upon proper illumination, which can be achieved only by electricity.

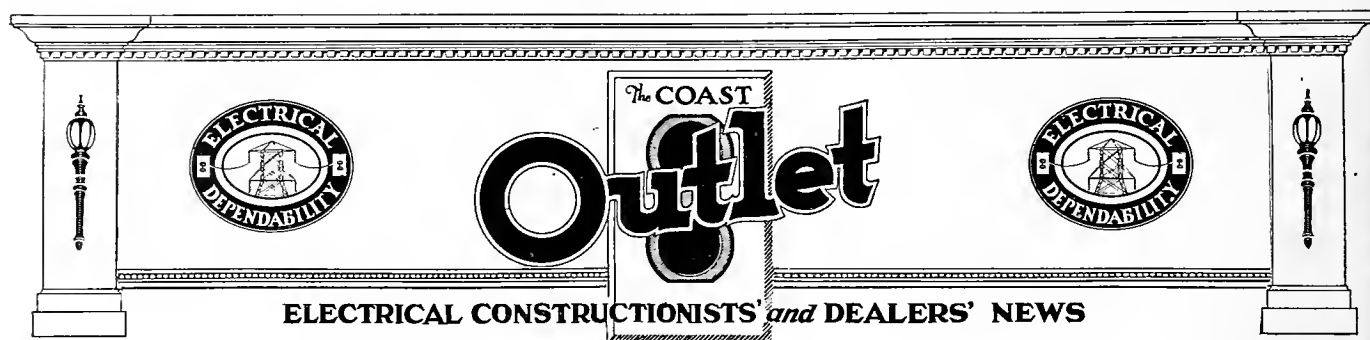
Dana Parkinson, upon his first visit to the cave after the installation of the floodlights, remarked that he had visited the cave fifty times or more and until the floodlights were installed had not realized the full beauty of some of the delicate formations to be found there.

The United States Government has set aside this cave as a national monument and has placed it under governmental care and protection. The cave was first opened to the public in 1922 and during the first year was visited by approximately 10,000 people.

Timpanogos Cave, as it is now known, is 7 miles from the town of American Fork and 2 miles up from the mouth of American Fork Canyon. Automobiles are parked at the camp and picnic ground below the cave. The remainder of the trip is made on foot over a mile of trail winding through evergreens and spectacular cliffs.



Method of installing floodlight—Timpanogos Cave, Utah.



Electrical Construction

By E. Earl Browne

THE foot-candle illumination recommended for the various classes of stores varies from five to ten but installations are not uncommon in recent months of forty foot-candles and as high as two thousand for show windows. The semi-indirect and enclosing glass fixtures, due to their pleasing appearance and effects and comparatively high efficiency, as well as

subjected to 3,200 watts when the store was even half lighted, it was decided by the Departments of Electricity of the cities of Oakland and San Francisco to issue rules and regulations covering this class of installation. On Oct. 15, 1922, the following was put in force and effect:

RETAIL STORES

Section 10. (a) Minimum Number of Lighting Circuits. When installing wiring for the interior lighting of retail stores, a sufficient number of lighting circuits shall be installed to permit the use of an average of not less than one watt per square foot of floor area in sales rooms, display rooms, and store offices, and an average of not less than three-tenths watt per square foot of floor area in basements not used as sales rooms and in storage rooms, stock rooms, toilets, dressing rooms, passage ways, halls, etc. Area of mezzanine floors shall be included and wattage computed for same according to purposes for which such mezzanine floor area is used. In addition to the above, circuit capacity shall be provided for all sign and other exterior lighting actually installed.

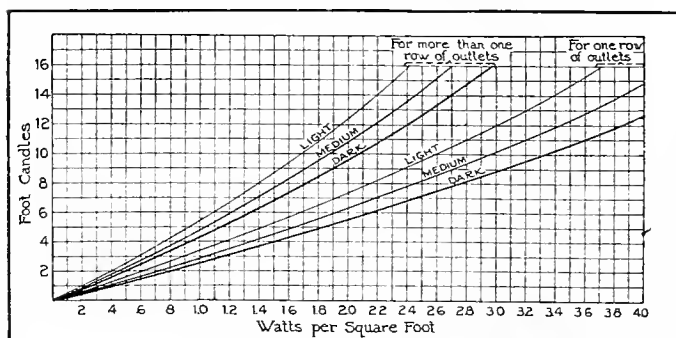


Fig. 1—Curve showing foot-candle illumination obtained by using enclosing opal glass units with clear Mazda C lamps.

a reasonable first cost, are the ideal fixtures for most store installations. In stores of special architectural treatment the fixtures must be specially designed to harmonize with other store fittings and furnishings.

Curves for rapid calculation on a watt per square foot basis for each of these types are given in Figs.

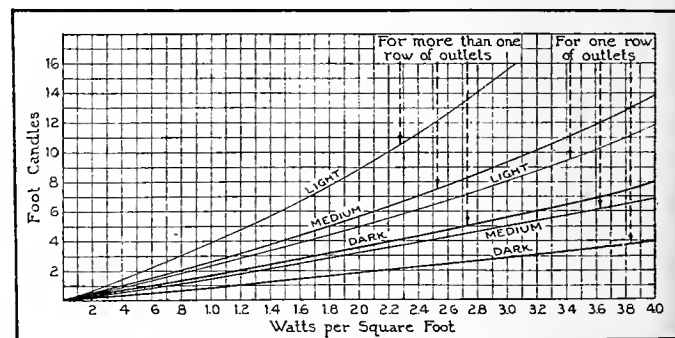


Fig. 3—Curve showing foot-candle illumination obtained by using dense opal semi-direct units with clear Mazda C lamps.

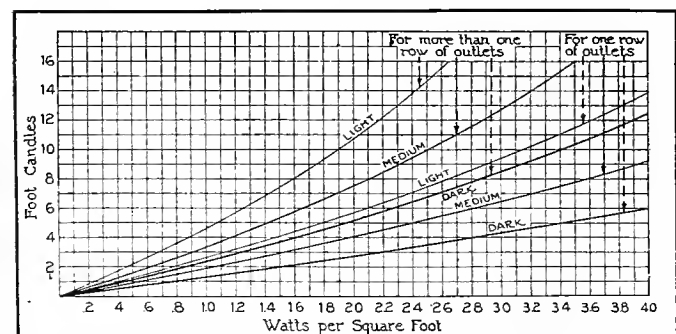


Fig. 2—Curve showing foot-candle illumination obtained by using light opal, semi-direct units with clear Mazda C lamps.

1, 2 and 3. Realizing that the present day merchant demands adequate store and show window lighting and that the owner in building store space is prone to economize on his wiring installation to such an extent that on actual tests 660-watt circuits were

The above are the minimum requirements. If the actual connected load is in excess of the above requirements, wiring must be installed accordingly.

(b) Maximum Number of Outlets per Circuit. Not more than 8 outlets shall be installed on any 660-watt circuit which does not supply any show window lighting and not more than 16 outlets shall be installed on any 1,320-watt circuit which does not supply any show window lighting. If any circuit has one or more show window outlets connected to it, not more than 6 outlets shall be installed on such circuit except as provided in subsection (d) of this section.

By special permission obtained in advance, departure from the above rule may be authorized in cases where low-wattage lamps are closely spaced for special interior decorative lighting effects.

(c) Maximum Wattage and Number of Sockets per Circuit. No group of lamps or other devices consuming over 600 watts, and not more than 16 medium size or 25 candelabra size sockets or lamp receptacles, whether grouped on one fix-

ture or on several fixtures or pendants, shall be connected to any one circuit; provided, however, that by special permission obtained in advance, 1,320 watts with not more than 32 medium size sockets, or 4,000 watts with mogul sockets, may be installed on one circuit, subject to and in compliance with all requirements given in the third paragraph of Rule 23 of the National Electrical Code; provided further, that 1,320 watts may be installed on show window circuits as specified in the following sub-section (d) of this section. In computing the total wattage of circuits, convenience outlets (receptacles

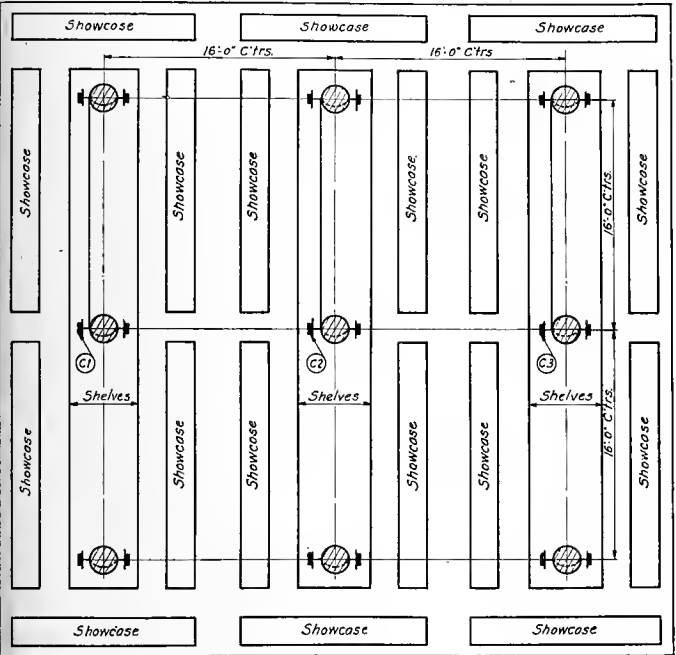


Fig. 4—Typical floor plan of store showing location of outlets at columns for extensions to show cases.

for attachment plugs) shall be rated as specified in sub-section (e) of this section.

(d) One Thousand Three Hundred and Twenty-Watt Show Window Circuits. For show window lighting, not over 1,320 watts with not more than 13 outlets may be installed on a circuit without special permission, provided all of the following requirements are complied with:

1. No outlets except show window lighting outlets and vestibule lighting outlets shall be installed on the circuit.
2. The window lighting outlets shall be equipped with keyless box lamp receptacles and the outlets shall be spaced not more than 20 in. apart.
3. Wire at least equal in size and insulation to approved No. 14 B. & S. gage wire shall be carried into each lamp receptacle.

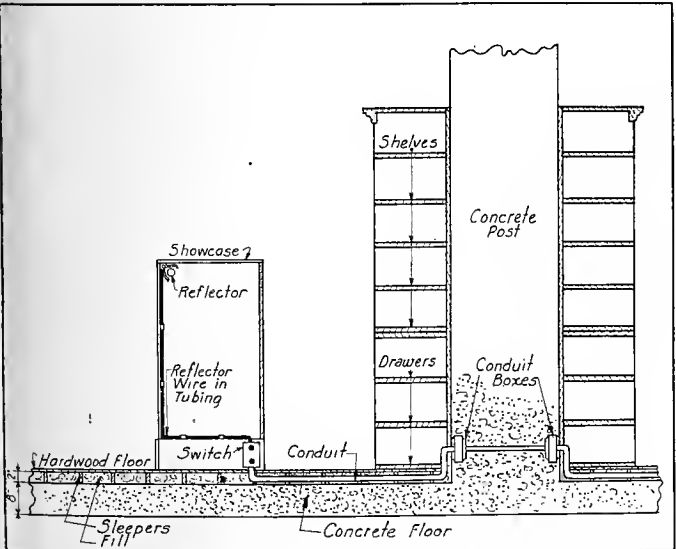


Fig. 5—Cross-section showing wiring from outlet to showcase.

4. There shall be installed within the show window an average of not less than one plug receptacle per 50 sq. ft., or fraction thereof, of floor or platform area of the window enclosure. Such plug receptacles shall not be connected to any 1,320-watt lighting circuit.

Unless all of the above conditions are complied with not more than 660 watts, and not more than 6 outlets, shall be installed on any circuit which has one or more show window lighting outlets connected to it. For requirements for plug receptacles, see sub-sections (e) and (f) of this section.

(e) Convenience Outlets (Plug Receptacles) in Retail Stores. In retail stores, special convenience outlet circuits may be installed in compliance with all requirements given in Section 8* hereof. Convenience outlets may also be in-

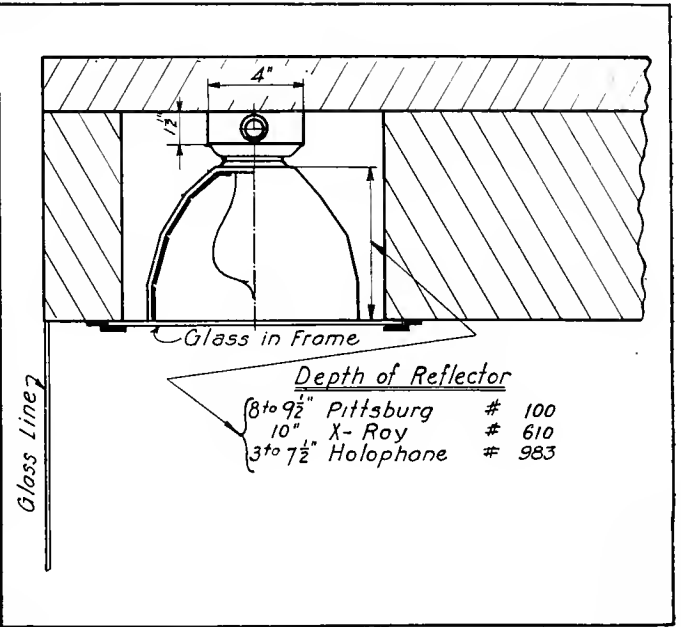


Fig. 6—Cross-section of display window showing installation of flush reflector and glass screen.

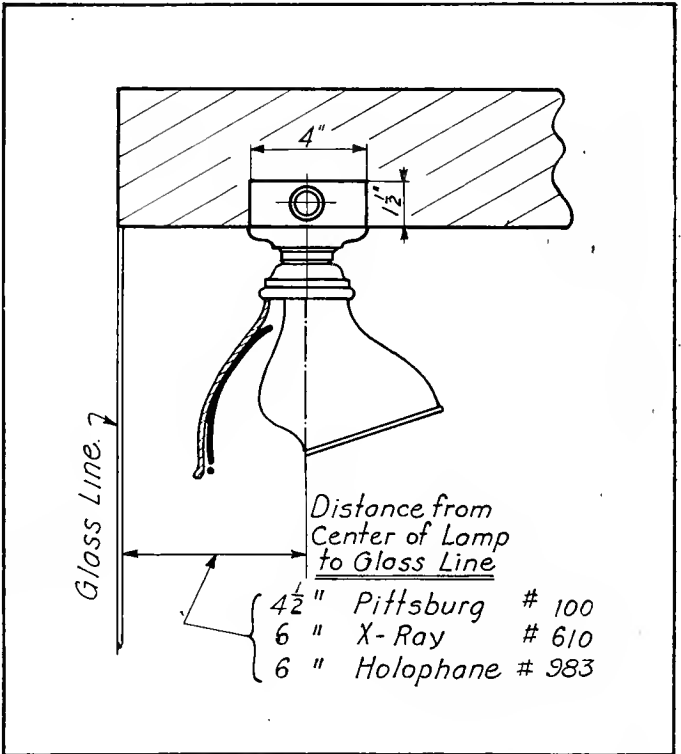


Fig. 7—Cross-section of display window equipped with stand-ard flush outlet and receptacle fitted with reflector.

*Sections 3, 4 and 8 cover convenience outlet installations in dwell-ings, flats and apartments. Their provisions were discussed in the May 15, 1923, issue of the Journal of Electricity.

stalled on 660-watt lighting circuits, and when so installed they shall be rated at not less than 100 watts each in computing the load on the circuit and they shall be of the type and rating specified in Section 3* hereof. No plug receptacle shall be installed on any 1,320-watt lighting circuit. Each plug receptacle rated at more than 10 amp. shall be protected by a separate cutout.

(f) Floor Outlets. Floor receptacles in stores shall comply with the requirements given in Section 4* hereof.

From the above it will be noted that one watt per square foot is required as a minimum in sales rooms, display rooms and store offices. From Figs. 1, 2 and 3 it will also be found that this installation will give but from one to five foot-candle intensity, according to the conditions.

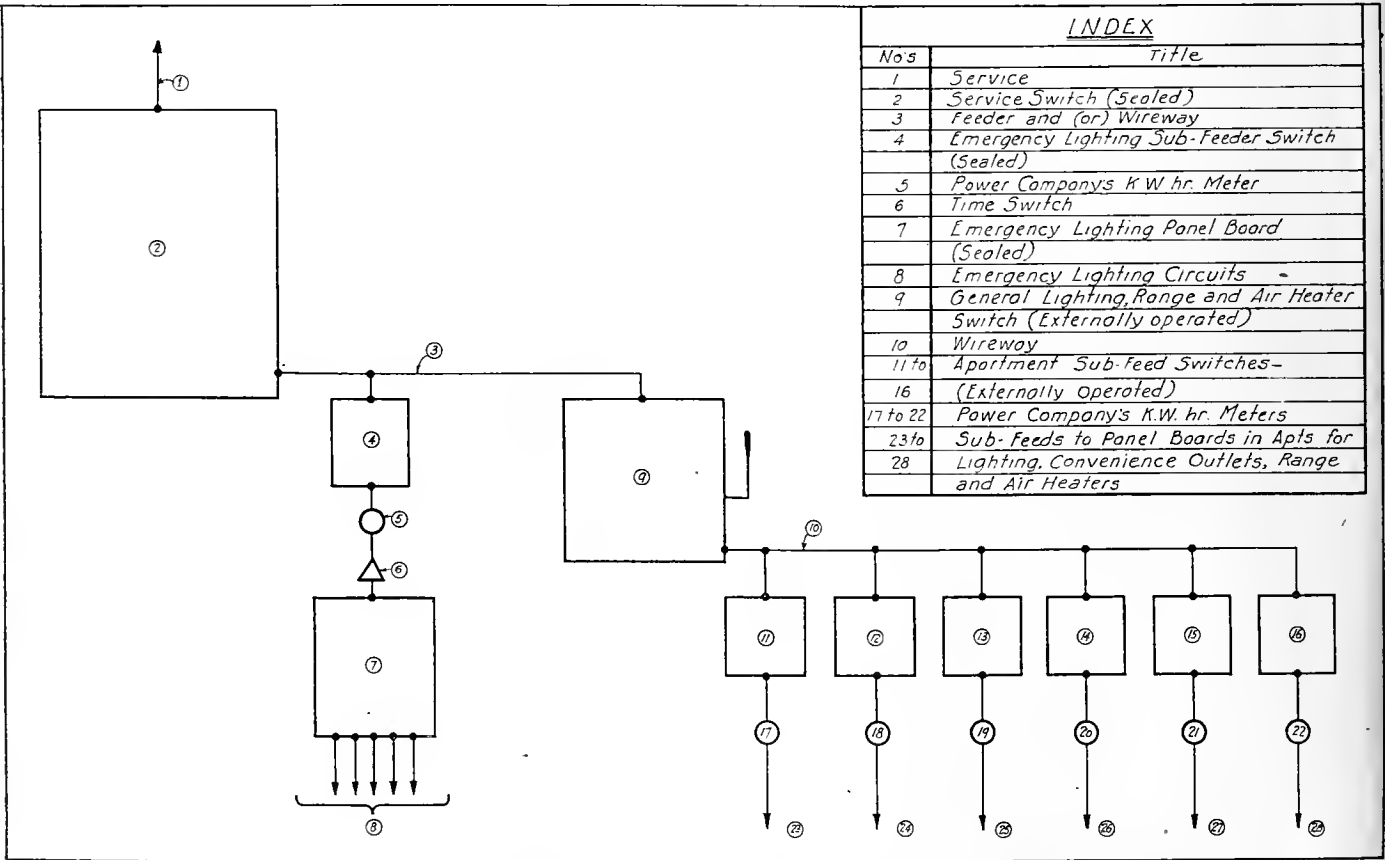
Merchants are careful to check the number of people of a particular class who pass a certain location and then gage the rent and other expense from these figures, and therefore in order to realize to the fullest extent on their investment they must attractively decorate their show windows. A well lighted show window, being the magnet to attract the passing crowds to a store, is of greater importance than the sales space insofar as a high intensity of illumination is concerned. In order to set the display off in contrast to the street and also to eliminate daylight glare, it is becoming not a question of how little artificial illumination can be used, but how bright can it be made.

There are various shapes and types of window reflector equipment but the most common are the mirrored glass unit and the prismatic reflector, as both of these lend themselves readily to the architectural design of the window and also are easily equipped with color screens or caps for effects desired

by the window trimmer. The control of the lights in circuit combinations for various effects or flasher operation is very important. As most merchants desire to make their windows as nearly 100 per cent efficient as possible, it is desirable to have such control of this lighting that they may be readily switched at the desired hour. This is accomplished by lock switches set in the vestibule base for operation by a watchman, or a time switch located in a section of the panel cabinet for control of those particular circuits.

Show cases are usually impossible to exactly locate on a job until after the general construction has been well completed. In order to provide for this equipment in the future, the best scheme is to run an empty conduit from panel board to two outlets in the base of each column. The contractor should allow at least one circuit of 660 watts for every two columns of four outlets as the usual centers of columns is from 16 to 18 ft. and with the usual arrangement, as per Fig. 4, it will be seen that each show case will be from 10 to 14 ft. long. Each case will have either 15 or 25-watt lamps on 12-in. centers and the demand will total 150 to 240 watts per case. When the show cases and shelving are located or rearranged, it is only necessary to cut pockets and fish flexible conduit to the push switch or junction outlet in the base of the case. If sleepers or joists are to be crossed it is only necessary to remove one strip of flooring.

A night watchman's circuit controlled from a lock switch in the vestibule, for illumination of the store interior as a protection against robbery, should be installed.



Wiring diagram for apartment house where emergency lighting only is on owner's meter, the individual tenants paying for all of the current they use on a combination rate. (The above diagram belongs to the articles on apartment house wiring which appeared in the July 1 and July 15 issues of the Journal of Electricity.)



Electragists of British Columbia in attendance at the Vancouver Association of Electragists, International Convention held in Vancouver July 27.

Convention Is Held by British Columbia Electragists

Electragists from all of British Columbia gathered in Vancouver on July 27, for the first purely Canadian convention of electrical contractor-dealers. Since the old National Association of Electrical Contractor-Dealers changed in form to this present organization known as the Association of Electragists, International, the Canadian division members have had no opportunity to meet James Strong, the president, although they have met Laurence W. Davis, director of promotion and development. In addition to this, O. C. Small of The Society for Electrical Development, paid Vancouver his first visit, and the convention was built around these three men.

A noonday luncheon in the Oval Room, Hotel Vancouver, formally opened the convention. This luncheon was held in connection with the Van-

couver Electric Club of which W. W. Fraser, electrical contractor, is president. The luncheon was attended by the usual members of the club and in addition by the members of the advisory council of the Electrical Service League of British Columbia and the executive committee of the Vancouver Association of Electragists, International.

An afternoon session followed the luncheon, over which C. C. Carter, western Canada division member of the executive committee of the International Association, presided. Mr. Small of The Society for Electrical Development, delivered the first address on "Overcoming Sales Resistance Against Electrical Appliance Sales." His talk was followed by an address by President Strong outlining the activities of the International Association, describing in particular the Eidlitz plan which has been adopted by the contractors in New York City. An open forum was held after this talk and not only the contractor-dealers but the jobbers and central station representatives entered wholeheartedly in the discussions.

In the evening a joint dinner of all four branches of the industry was held at the Hotel Vancouver. W. G. Murrin, vice-president of the British Columbia Electric Railway Company, Ltd., presided and Mr. Davis addressed the gathering on the subject, "Estimating and Selling the Job."

In connection with the convention an Electrify Club contest was held to determine which members of the industry believed enough in the electrical industry to use the appliances and electrical conveniences they were selling in their business. Five members qualified for election to the club. Percy Farr of the firm Farr, Robinson & Bird, won the contest but refused to accept the prize offered as he was a scrutineer for the Electrify Club committee, so that H. Pim, district manager for the Canadian General Electric Company, was awarded the first prize. The five members of the Electrify Club were P. F. Farr of Farr, Robinson & Bird; H. Pim, Canadian General Electric Company; F. J. Little, district manager, Northern Electric Company; Bert Cope of Cope & Son, and Fred Cope of the same firm. This contest will be held annually hereafter and the rivalry for membership in the next contest is sure to be keen.

The convention was attended by over one hundred members of the electrical industry and was productive of much good.

Los Angeles Dealer Stimulates Sale of Small Motors

Frank T. Broiles, manager International Electric & Machinery Company, Los Angeles and Southern California distributor for Robbins & Myers, is spending his annual vacation in San Francisco. Mr. Broiles always makes his vacation the occasion for visiting the various factory branch sales offices and for gathering material for new sales effort.

He has only recently put into effect a plan which has resulted in the sale of one hundred ¼-hp. motors per month to domestic customers. These motors are sold for various household duties such as polishing silver, grinding knives, etc. They are also used for experimental work and for such cabinet and other work as is frequently done at home.

By the means of incidental equipment such as small saws, finishing tools and buffers the field of application has been extended to small manufacturers with gratifying increase in sales volume.

Bert Sloan, Santa Fe, N. M., has just moved his place of business from Don Gaspar Avenue to San Francisco Street, where he has put in new stock in anticipation of fall business.

L. W. Chaffee and family, of Visalia, Calif., have recently returned from a 4,000-mile vacation trip through the Northwest. They visited among other places Banff and various resorts in the Canadian Rockies.

Guilbert Brothers of San Jose, Calif., are planning to open a branch of their successful electrical supply business in Fresno, Calif. They will have a thoroughly modern store with complete lines of appliances.



In the days before the electric washing machine with the automatic wringer were put on the market, hats were undoubtedly wrung dry in the manner shown by Albert E. Sargison, of the San Francisco office of the General Electric Company. Mr. Sargison proved to the delegates at the California State Association of Electrical Contractors and Dealers, that the hand wringer is still available but is not as satisfactory as the electrically operated machine.



Business in Eureka, Calif., is evidently prosperous, at least for the electrical contractor-dealers. George Katz, who may be seen standing in the doorway of the Safety Electric Works, is the proprietor of that establishment and is awaiting the arrival of a new automobile.

JOBBER, DEALER AND SALES AGENT



Simulating Home Conditions on the Sales Floor

Utah Power & Light Company Through Use of Model Rooms Puts Appliances in Their Proper Environment

The merchandiser of electric appliances has found that space limitations have kept him from displaying his stock in just the way that he has desired. The ideal way to present any product to a prospect is to have that article placed just where it would actually be placed if it were in operation in the consumer's hands. It has been the effort of window trimmers to simulate these conditions as much as possible in the displays that they have presented and many store managers have also endeavored to do this same thing.

It has been easier for window trimmers for they have had an entire window at their disposal and have been under the necessity of featuring only one particular thing. In these cases the dresser can make the display represent a kitchen, bedroom, living room or any other thing that he may wish and can within certain limitations achieve almost perfect settings for the merchandise that he has to display.

The store manager has had a much harder problem to solve. The interior of the store is a show window all of the time and must have all of the merchandise carried in stock, on display at all times. Certain articles can be featured at certain times, but the rest of the stock must always be ready to show to customers. If space permitted, the manager could have his store divided up into display sections where the window trimmer's art could be used in reproducing conditions in the consumer's home. If this ideal condition could be had, it would be an easy matter to display an electric range in a modern kitchen, and in this way show the housewife exactly how a range would improve her kitchen. A table lamp could be shown in a well arranged living room and would create the desire to own that lamp much more than would any other means of display where the lamp was just one of a number of similar fixtures.

Space limitations have prohibited this and the merchant must be ready to provide other means for displaying his stock. Proper illumination has done a great deal to increase the value of the store and, if to this aid is added a careful arrangement of the stock, it has been found that sales are made much easier. In some cases it has even been possible to partially simulate home conditions.

The Utah Power & Light Company in its retail store in Salt Lake City, Utah, has made an effort to put electric appliances in their proper environment without sacrificing too much space to

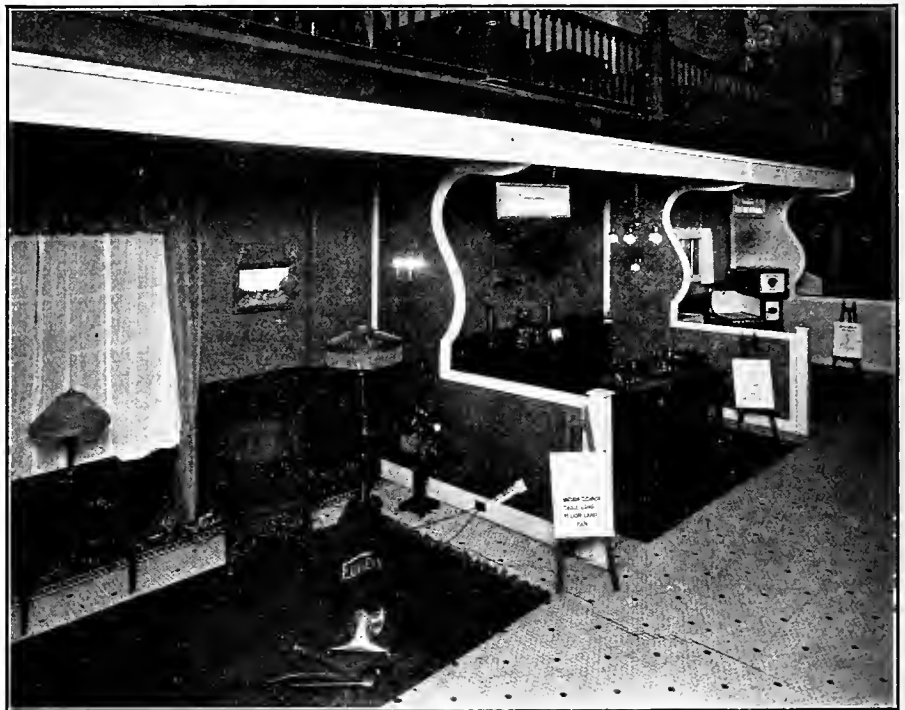
the displays. To do this the company has erected small booths along the side wall of the store room that is occupied by the retail shop and has made these to represent the various rooms of the home.

As the customer enters the store, three "rooms," which are in reality booths, stand out and attract his or her eye. The first "room" is the "living room." There a table lamp, floor lamp, electric fan and vacuum cleaner are presented in the way that they would appear in the customer's home. A table and chairs are placed inside of the "room" and these, together with the

room" provides an excellent opportunity to display a toaster, percolator, waffle iron and electric grill. By thus aiding the housewife to see the equipment as it would appear in her own home a great deal of sales resistance has already been overcome before the sales talk is presented.

The "kitchen" is located to the rear of the "dining room" and is finished in white. There an electric range holds the principal position. Small appliances such as egg whippers, grinders, etc., are also provided, thus giving the "room" a more complete electrified touch. An electric fan is also provided to keep the cook cool.

In all of the "rooms" there is an adequate supply of convenience outlets and the attention of the visitor is called to these by small arrows pointing to them. Instead of having full walls between



The three "rooms" pictured above are used by the Utah Power & Light Company to show customers how the electrical appliances displayed would look in their own homes.

curtains and drapes which hang over a false window, give the booth a semblance of living room atmosphere. A wall fixture is located at each end of the room on the side walls. The ceiling is made by the floor of the mezzanine floor which stands out over the "room."

Behind the "living room" is the "dining room," which is furnished with an artistic table and buffet. Overhead lighting fixtures and lamps on the buffet supply illumination. This "dining

the "rooms" a part of these walls is cut away so that a portion of all of the rooms may be seen on entering the store. This adds to the value of the display and cuts down the cost of erecting the walls.

The company has found that this method of showing goods has been a very practical way to overcome the difficulties of the past. The devices are shown in close to their natural position and a great deal of space is not needed.

ELECTRIC RADIATOR AND HEATER DIRECTORY

Published and Copyrighted by the Journal of Electricity, Sept. 1, 1923.

A list of Electric Radiator and Heater Manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way, mention the Journal of Electricity.

Key to Abbreviations
B—Bronze
Br—Brass
C—Copper

Nk—Nickel
BS—Blue Steel
OI—Old Ivory

En—Enamel
Po—Portable
Pd—Pendant

St—Stationary
Fr—Fireplace
VM—Various Models

NAME OF MANUFACTURER	TRADE NAME	Dimensions in Inches	Reflector Dimen. (Inches)	FINISH		Type	HEATING ELEMENT						PRICE		WESTERN SALES REPRESENTATIVES	WESTERN DISTRIBUTORS	Nearest Point at Which Repair Parts Can Be Secured.
				Heater	Reflector		Number of Elements	Total Wattage	No. of Heats	Removable Elements	Fits Edison Socket	East	West of Rockies				
Edison Elec. Appliance Co., San Francisco, California.	"Hedlite" (High Wattage)	20x15 VM	14 VM	B OI En En	C	Po Po	1 	630 1000 to 5000	1 1 to 3	Yes 	Yes No	..... .....	\$7.95 to \$16.50 \$26.00 to \$56.00	Edison Elec. Appl. Co., Inc., Ontario, Calif.	All Leading Jobbers.	Ontario, Calif.
Heatg. & Mfg. Co., Seattle & Republican Sts., Seattle, Wash.	"Circu- Flector" "100% Radiator"	15x9 	9 1/2 	C En	C	Po Po	1 3 to 6	660 1200 to 8000	1 3 to 6	Yes No	Yes No	..... .....	\$8.00 \$20.00 to \$75.00	Elec. Htg. & Mfg. Co., Seattle	Eastern Mfrs. Co., Portland Wholesale Electric Co., San Francisco Seattle-Astoria Iron Wks., San Francisco	Seattle
Stove Co., The Milton, Ohio	"Estate"	17x8 	9 1/2 	B En	B	Po Po	1 	660 	1 	Yes 	No 	\$7.50 	\$8.00 	The Estate Stove Co., Furn. Exchge. Bldg., San Francisco	The Estate Stove Co., San Francisco	Factory	
Heat Elec. Co., 9 Canton Ave., Detroit, Mich.	"Even Heat"	17x9 .....	..... .....	En 	N	Po Po	2 	660 	1 	Yes .....	..... .....	\$9.50 .....	..... .....	Karpp Sales Co., 1160 Pine St., San Francisco	Karpp Sales Co., San Francisco Tacoma Mercantile Co., Tacoma North West Sales Co., St. Paul, Minn.	St. Paul, Minn.
Ward Mfg. Co., The Hartford, Conn.	"Model C" "Model D"	18x14 17x12	14 12	En En	C C	Po Po	1 1	600 600	1 1	Yes Yes	Yes Yes	..... .....	..... .....	A. S. Chernoff Co., 41 Fell St., San Francisco		San Francisco
Gilbert Co., The Hartford, Conn.	"Polar Cub"	13x11	11	En	C	Po	1	550	1	Yes	Yes	\$5.00	\$5.25	H. E. Iblings, 4816 Franklin Ave., Los Angeles	In all large cities.	Distributors	
Die & Stamping Co., Chicago, Ill.	"The Sun"	19x14	14	En	C	Po	1	575	1	Yes	Yes	\$8.50	\$8.85	H. J. Gute & Co., San Francisco R. M. Burton Sales Agcy., Alaska Bldg., Seattle Leo Rabin, 1516 S. Union Ave., L. A.		Sales Representa- tives	
Wesley Hicks, Rialto Bldg., San Francisco	"Wesix"	VM	.....	.....	.....	Po St. Fr.	VM	800 to 6000	3 .....	..... .....	..... .....	..... .....	..... .....	W. Wesley Hicks, Rialto Bldg., San Francisco	All Jobbers	San Francisco
Landers, Frary & Clark, San Francisco, Calif.	"Universal" and "Thermax"	16x12 and 18x14	12 and 14	B En	C C	Po Po	1 1	625 615	1 1	Yes Yes	Yes Yes	\$7.50 to \$11.50	\$7.50 to \$11.50	Landers, Frary & Clark 335 New Call Bldg., San Francisco	Electric Appliance Co., San Francisco The Electric Corp., Los Angeles, Seattle, Portland Fobes Supply Co., Seattle, Portland Hdwe. Jobbers	Universal Service Stations, San Francisco, Los Angeles, Seattle	
Majestic Elec. Appl. Co., Inc., Folsom St., San Francisco	"Majestic" "Radiant"	16x12 19x14 15x15 19x14	11 1/2 12 1/2 12 1/2 12 1/2	En En Nk En	C C C C	Po Po Po Po	1 1 2 2	615 615 760 960	1 1 1 1	Yes Yes Yes	Yes Yes No	\$9.50 \$10.50 \$25.00 \$13.50	\$9.50 \$10.50 \$25.00 \$13.50	Majestic Elec. Appl. Co., San Francisco	All Jobbers	Jobbers	
	"Radiant- Convection"	17x22 20x28 9x35	..... ..... .....	B Br C	..... ..... .....	St Fr St	..... ..... .....	2000 4000	3	No	No	\$40.00 to \$115.00	\$40.00 to \$115.00			
Ut & Co., E. 23rd St., New York City	"Double Ray"	7x8	8 1/2	Br	C	Po	.....	600	1	Yes	Yes	\$8.50	\$8.50	Ralph A. Ryan 417 Montgomery St., San Francisco	Reiman Whse. Elec. Co. Los Angeles	New York City
Heus Elec. Co., W. 42nd St., New York City	"Prometheus"	18x3	.....	.....	.....	Po	5	1000	3	Yes	No	\$25.50	\$25.50	M. E. Hammond, Pacific Bldg., San Francisco		New York City
on Rochester Corp., Anderson Ave., Rochester, N. Y.	"Royal- Rochester"	18x14	14	E	C	Po	1	600	1	Yes	Yes	\$10.50	\$10.50			Rochester, N. Y.	
Electric Co., W. Huron St., Chicago, Ill.	"Hold Heat"	24x13	.....	BS	.....	.....	1	500	1	Yes	No	\$2.50	\$2.50	J. G. Pomeroy, 336 Azusa St., Los Angeles.	Alexander & Lavenson, San Francisco North Coast Electric Co., All Branches United Elec. Supply Co., Salt Lake City Elec. Equipment Co., Butte, Mont.	Jobbers Stock
er Elec. Co., ion, Ind.	"Marion"	18x13	11 1/2	En	C	Po	1	615	1	Yes	No	\$10.00	\$10.00	Atlantic-Pacific Sales Co., 646 Mission St., San Francisco	Atlantic-Pacific Sales Co., San Francisco	San Francisco	
ine Mfg. Co., ehama St., San Francisco	"Hulbert"	VM	.....	.....	.....	VM	VM	660 to 6600	.....	.....	.....	.....	\$35 to \$250	Scheeline Mfg. Co., San Francisco		San Francisco
x Elec. Heatg. Co., dney St., bridge, Mass.	"Sunbowl"	20x14	14	En	C	Po	1	600	1	Yes	No	\$11.00	\$11.00	R. C. W. Libbey, P.O. Box 793 Main Office, San Francisco	Universal Elec. Co., San Francisco Reiman Whse. Elec. Co., Los Angeles M. Selter & Co., Portland	Distributors	
	"Sunbowl Jr."	13x11	10 1/2	En	C	Po	1	600	1	Yes	No	\$7.00	\$7.00				

NOTE—In compiling this series of Directories, the Journal of Electricity has made an effort to secure the desired information from all manufacturers of the types of equipment listed that is sold in the West. The Publisher will be glad to receive omissions, changes and additions for publications in the big FALL BUYING NUMBER of October 15, 1923.

ELECTRIC RADIATOR AND HEATER DIRECTORY

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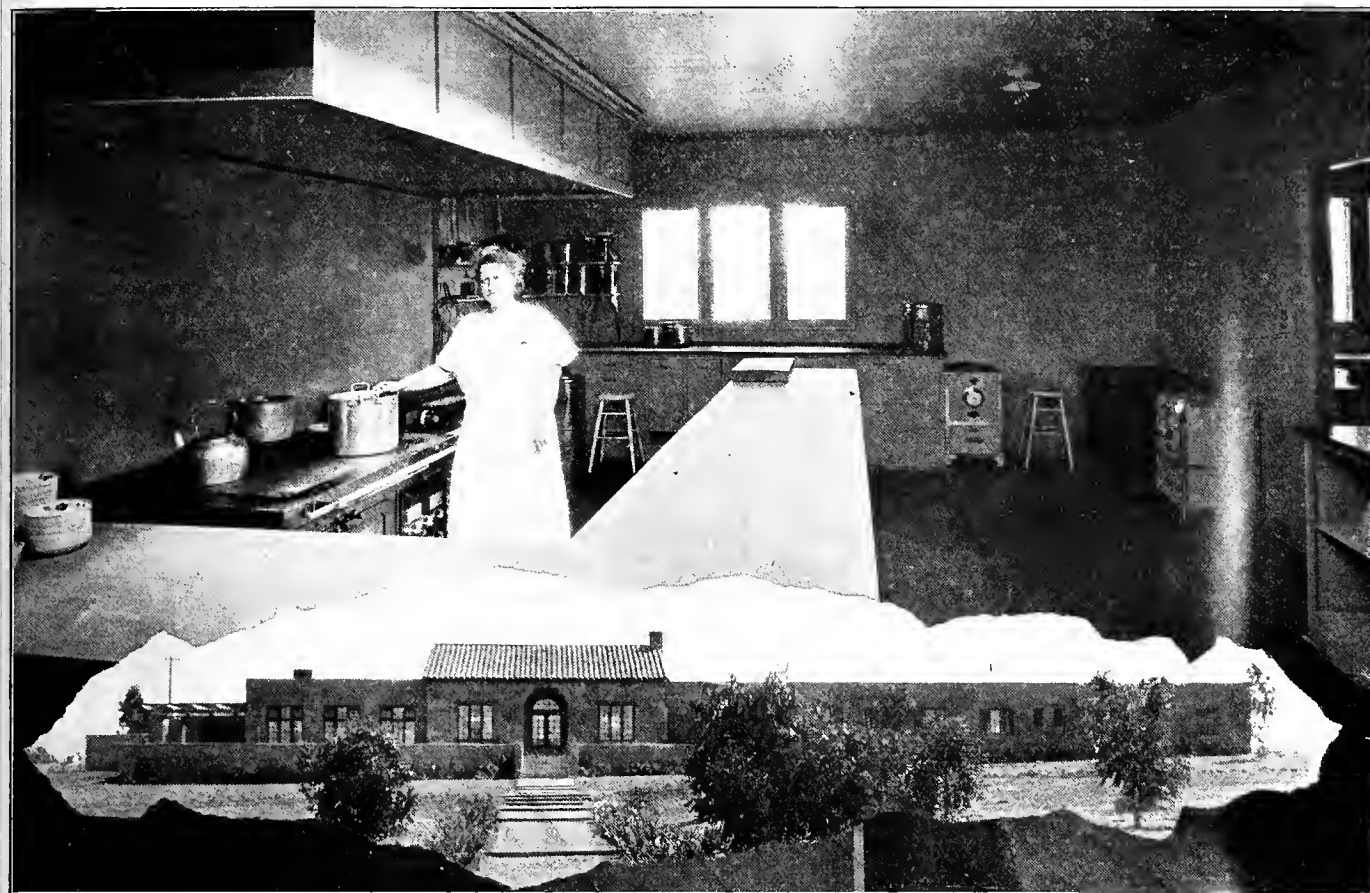
A list of Electric Radiator and Heater Manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way, mention the Journal of Electricity.

Key to Abbreviations																	
B—Bronze				Nk—Nickel				En—Enamel				St.—Stationary					
Br—Brass				BS—Blue Steel				Po—Portable				Fr—Fireplace					
C—Copper				OI—Old Ivory				Pd—Pendant				VM—Various Models					
NAME OF MANUFACTURER	TRADE NAME	Dimensions in Inches	Reflector Dimen. (Inches)	FINISH		Type	HEATING ELEMENT						PRICE		WESTERN SALES REPRESENTATIVES	WESTERN DISTRIBUTORS	Nearest Point Which Repair Can Be Secure
				Heater	Reflector		Number of Elements	Total Wattage	No. of Heats	Removable Elements	Fits Edison Socket	East	West of Rockies				
Sparling Elec. Prod. Co. 2 Letchworth St., Buffalo, N. Y.	"Hot Glow"	20x20 30x30	C	Fr	3	1400	3	No	Regan & Koehler, 240 Rialto Bldg., San Francisco P. C. Koehler, 1207 Washington Bldg., Los Angeles			
Stoughton Mfg. Corp., Stoughton, Wis.	"Hot Breeze"	Nk	Po	1	600	1	Yes	\$6.00	\$6.00			Factory	
Strait & Richards, Inc. Fabyan Place Newark, N. J.	"Gloglog"	En	Fr	2	2000	2	Yes	\$35.00	\$40.00	Atlantic & Pacific Sales Co. 646 Mission St., San Francisco	Atlantic & Pacific Sales Co. San Francisco Silver State Elec. Co. Denver	San Francisco
Westinghouse Elec. & Mfg. Co. 1st. Natl. Bank Bldg., San Francisco	"Cozy Glow"	18x14	14	En	C	Po	1	600	1	Yes	Yes	\$10.50	\$10.50	Fobes Supply Co. San Francisco, Portland, Seattle Illinois Elec. Co. Los Angeles	Westinghouse Agent Jobbers	Jobbers & Dealers	
Xardell Corp. Utica, N. Y.	"A-Little- Warmer"	18x10	Nk	Po	1	660	1	\$7.50	\$7.50			Factory

Furthering the Electrical Idea in California



AUDIENCES with an average of about one hundred persons have been attending the lectures given in connection with the Better Merchandising Display Exhibit of the California Electrical Cooperative Campaign in the first month that this exhibit has been on the road in northern California. Thirteen performances were held during the month of August and at each the attendance was extremely satisfactory. Evidences of direct results have been numerous.



The electric kitchen at La Mirada, at the Rancho Santa Fe, San Dieguito River Valley, near San Diego, one of the first electric kitchens in southern California to be put in successful operation. Inset, a view of La Mirada from the roadway.

Increase Hotel Kitchen Electrical Installations

Commercial Cooking Field Offers Opportunity for Profitable Development by All Branches of the Industry

A field which has hardly been scratched in the West and one from which all of the branches of the electrical industry can obtain profitable business, is the hotel industry. Attempts to electrify the kitchens of hotels, grills and restaurants have been made, but as yet the number of these installations is extremely low compared to the number of electrical installations in homes.

Revenue from these commercial installations is divisible among the various factors in the industry and it is to their common advantage to encourage the electrification of the kitchens whenever that is possible. It has recently been revealed that on the lines of one of the power companies in extreme southern California, there is only one hotel kitchen which is completely electrified. The installation that was made was sold largely because of the efforts of the power company that serves the hotel.

This most recent installation was made at La Mirada, an inn on the Rancho Santa Fe, in the San Dieguito River Valley, near San Diego. The land upon which the inn is located is owned by the Atchison, Topeka & Santa Fe Railroad and is part of a large acreage that the company purchased some time ago on which it proposed to grow eucalyptus trees for railroad ties. Recently the company decided to subdivide the tract into a number of small farms and constructed the necessary roads to tie

the farms in with the main roadways. In constructing these roads, it was necessary to have electric power and arrangements were made for an extension of the lines of the San Diego Consolidated Gas & Electric Company to the tract. This power is now used for driving pumping motors that are used to irrigate the land and also to furnish light and power for residential customers.

When La Mirada was built, the San Diego Consolidated Gas & Electric Company representatives talked with the resident manager of the ranch and convinced him that by electrifying the kitchen of the inn, he would be making it one of the most modern on the Pacific Coast. The installation was made and the equipment of the kitchen now includes a 22-kw. hotel type heavy duty range, a 6-kw. frying griddle and grill, two electric fireless cookers, and an electric water heater. L. G. Sinnard, resident manager of the Rancho Santa Fe, also intends to install a large size toaster at a later date. The total connected load of the present equipment is 55 kw.

The sale of the electrical equipment to the inn came only as a result of considerable work on the part of the central station company representatives. Because it was difficult to obtain any definite figures on the operation of electrical equipment in hotel use in the West, the work of selling the equip-

ment to the management was still harder than it would have been otherwise.

According to reports from the inn, the manager is entirely satisfied with the electrical equipment that has been installed and is enthusiastic over the operation of the electrical devices. The power company serving the inn is receiving a good return from the power that is sold and is endeavoring to secure a larger load of this character. An attractive rate has been offered for this class of service and the power company considers the load as desirable in that the majority of it is on the lines at off-peak times.

Contractor-dealers can well afford to encourage hotel managers to make electrical installations as they can profit both from the contracting work that is required and from the equipment that they may sell. Cooperation with central station companies will undoubtedly aid both branches of the industry in increasing the number of these installations.

Ornamental electric signs, to announce the various attractions, and to serve as indicators when the theater section is not "dark," will be placed on the Municipal Auditorium in Denver, Colo., according to a recent announcement of Louis E. Ormsby, commissioner of supplies and custodian of the building. Present plans provide for an initial installation of two signs similar to those used by the larger theaters, on the Curtis and Fourteenth Street sides of the Building. It is also possible that the present automobile signal system will be replaced with one of improved design.

Second Successful Range Sale Held in Spokane

Over Seven Hundred Electric Ranges Sold by Washington Water Power Company in Two Drives Conducted This Spring

By W. T. RYAN

On May 15 The Washington Water Power Company, of Spokane, completed a six weeks' campaign in which 431 electric ranges and water heaters were sold among their customers in Spokane and in towns of the Inland Empire served directly by that company. On June 18 another campaign was begun and at its completion, on July 21, 316 ranges and water heaters had been sold.

The sale of 316 ranges in five weeks is an achievement but accomplished as it was, only two months after the termination of a record-breaking campaign, it is a tribute not only to the aggressiveness of the sales force which did the work, but also, and more particularly, to the courage and thorough understanding of the psychology of the community, which must have been the basis for the decision to make the effort. The man who made this decision was Lewis A. Lewis, sales manager of the Washington Water Power Company, who was one of the first men in the industry to appreciate the possibilities of the electric range as a revenue builder. Today, with nearly 5,000 ranges and water heaters on the lines, producing a revenue of close to half a million dollars per year, Mr. Lewis feels that only a good beginning has been made.

The question of interest is, "How was it done?" To begin with, enthusiasm was aroused. A banquet was held in the Davenport Hotel the evening of June 15, presided over by the host, Ray W. Turnbull of Portland, Northwest representative of the Edison Electric Appliance Company, manufacturers of the Hotpoint-Hughes electric range. The guests included Phil Carson, manager of the Western Electric Company, the local distributors in Spokane, and the follow-

ing representatives of the Washington Water Power Company: Lewis A. Lewis, sales manager; V. G. Shinkle, treasurer; J. S. Simpson, auditor; J. F. Farquhar, general agent; R. B. McElroy, manager of the Electric Shop and salesmen of the Spokane city force, and the principal towns served by the company. Mr. Lewis asserted that conditions in respect to sales force, service department, merchandise and local conditions had never been better and that his only concern was obtaining delivery of all the ranges that would be sold.

In Spokane, the preliminary advertising was begun June 11, in the local papers. This consisted of four 12-in. "teaser" advertisements showing only a heart-shaped figure enclosing the legend "4.75 Down," with the words "Watch for Announcements!" During the campaign, illustrated advertisements were run, amounting to 1,461 in., in twenty-two insertions. Up to July 11 no reference was made to price, which was \$164.75 covering complete installation of Hotpoint-Hughes electric range, Bungalow Type R-101, together with water heater, payable \$4.75 down and \$7 per month. This price was \$85 lower than that used in the preceding campaign, during which it was noticed that many people telephoned to ask the price, and could not be induced to consider purchasing.

In the belief that many of these people would buy at the lower price, on July 11 the advertisements were changed by announcing the total price for a range and water heater installed and this radical departure from the previous methods produced a marked acceleration in the selling. In the smaller

towns the price was advertised from the beginning.

As a special inducement to purchasers, a five-piece combination cooker set of aluminum ware was given with each range. With every bill sent to residential consumers during the campaign, an attractive insert was attached. Hand-some illuminated sign boards were displayed on principal car lines.

In order to stimulate the greatest possible efficiency among the salesmen, they were assured a commission of 10 per cent on the sale of each range and water heater, based on the cash price and not the partial payment price. A quota was set for each of the salesmen, based upon his record during the previous campaign, and a bonus of \$20 was offered for each man who should make his quota. Each week a sum based on \$2 per range for all sold during the week, was divided in the proportion 3-2-1, among the three city salesmen who sold the highest percentage of their respective quotas during that week. A. E. Lacroix sold, during the last week of the campaign, 83 per cent of his campaign quota, and W. A. Johnston and E. R. Hunt practically tied for second place at 62½ per cent of their respective quotas.

An idea as to what degree some of the smaller towns are sold on the idea of cooking by electricity may be gained from the town of Wilbur. Forty-two per cent of the residential customers of the power company in that city have electric ranges installed in their kitchens, leaving only 157 of the 257 residential consumers without electric ranges.

While the sales efforts of the company were concentrated on the Hotpoint-Hughes bungalow range, approximately 20 per cent of the grand total sold were of the larger and more expensive types. The size of water heaters varied somewhat but most of them were rated at 750 watts.

The city sales were effected by five salesmen working full time, and one part time. One of these men was on

THE NEW HOTPOINT-HUGHES BUNGALOW ELECTRIC RANGE

Take Advantage of This Big Opportunity

Comfort, Cleanliness and Convenience are now within reach of every housewife ~ ~

In a great Introductory Sale at the sensationally small down payment of \$4.75, we will sell and install in your home ready for use—a new Hotpoint-Hughes Bungalow Electric Range and Water Heater.

June 18th—Introductory Offer—July 21st

Besides the bargain introductory price, this sale presents the smallest down payment and monthly payments ever offered. As an extra offering—we will give absolutely free—a new five piece "Wear-Ever" aluminum combination cooker set with each "range and water heater" purchased at \$4.75 down.

CALL, PHONE OR WRITE

The Washington Water Power Company

"Electric Cookery is Correct Cookery"

Two color announcements, similar to the one reproduced above, were put in with the bills of the Washington Water Power Company to announce the range sale. A picture of the range was shown.

duty every afternoon in the Electric Shop of the Washington Water Power Company, taking turns in rotation, where they supplemented the efforts of two regular floor salesmen. The sales in the country were made by the twenty-five regular district and local agents of the company.

The result of the campaign was the sale of 316 ranges and water heaters, as follows:

ment their keen interest in this campaign. He said that the importance of the electric range in producing revenue was fully realized by the whole executive staff, and that during his recent visit in New York, a number of the directors had commented upon results of the previous campaign. By these two campaigns approximately 750 ranges have been added to the lines, representing annual revenue of \$67,500, and Mr.

	Spokane	Towns Directly Served by the W.W.P. Co.	Total
Population	115,000	55,000	170,000
Residential consumers	24,700	7,500	32,200
Ranges in use at beginning of campaign.....	2,598	1,887	4,485
Sales of campaign Hotpoint-Hughes Bungalow Type			
R-101	153	101	254
Other larger new ranges.....	31	31	62
Total new sales	184	132	316
Total now in service.....	2,782	2,019	4,801
Percentage of residential consumers.....	11.25%	26.9%	14.9%
Gross sales value.....		\$57,000.00	
Gross annual revenue added by new ranges		\$28,500.00	

Miss Beryl Washburn, special factory demonstrator, was on duty in the Electric Shop throughout the campaign and in addition the factory supplied two special representatives who furnished great assistance by keeping closely in touch with shipments and in a variety of other ways.

At a banquet given on June 21, by Ralph J. Cordiner, Portland representative of the Edison Electric Appliance Company, the successful termination of the campaign was celebrated by sixteen guests. Mr. Cordiner presided and in behalf of himself and Ray W. Turnbull, Northwest representative, voiced their appreciation of the efforts that had been made by the Washington Water Power Company and by Mr. Carson of the Western Electric Company in achieving this success. Mr. Lewis, sales manager of the power company, said that he had entered upon the campaign with the hope that 150 ranges would be sold and in setting a quota of 133 for Spokane, he felt it was a high figure and that the sale of 316 ranges was merely a striking testimonial to what could be accomplished by careful planning and thorough cooperation between the sales, service and credit departments. J. E. E. Royer, assistant to the general manager of the Washington Water Power Company, expressed for the manage-

Royer pointed out that central station operators cannot be indifferent to such results.

R. B. McElroy, manager of the Electric Shop, spoke of the harmony and co-operation that existed between the members of the sales force, saying that throughout the campaign the men had thought only of the results for the company and had repeatedly gone out of their way to help each other, each oblivious of his own self interest. It is hoped that by Christmas, a total of at least 1,200 ranges will have been added to the lines during 1923.

The Parade and the Electrical Contractor-Dealer

That any parade will attract attention is a well known fact, but the electrical contractor-dealer is not interested only in the attention value of the entire parade. He is concerned with what impression his own float will make on the persons who see the parade. "Will my float stand out from the rest, and will the public remember the thing that I am advertising?" is the question that the contractor-dealer can rightfully ask himself when preparing his display.

It is the general practice that when a parade composed of local floats is

held, prizes are awarded to the persons responsible for the most attractive ones. To the judges who decide which floats shall receive the prizes, there are a number of different criteria which may be used in arriving at a decision. To the merchant the criterion is, which float made the most impression on the public? In general it has been found that for the advertiser who wishes to announce some particular thing, which he sells directly for the consumer to use, the novel presentation is the best one to use in the parade. For the concern



A washing machine, two advertising posters, a goat and small pieces of conduit made this prize-winning float for a San Luis Obispo firm.

which is anxious to develop good-will or to advertise its name instead of a definite product, it has been found that the decorative idea is the best one to follow.

An interesting example of how a contractor-dealer in a small city made a novel and original display out of a washing machine, was recently presented in San Luis Obispo, Calif. The parade was scheduled for the Fourth of July and nearly every large establishment in the city prepared to enter a float in the parade. Cline's Electric Shop, one of the leading contractor-dealer firms in the city, prepared a display by using only a washing machine, two of its advertising sheets and a goat.

The goat was used to draw the float which was the washing machine. Three short pieces of conduit and two tees were used for shafts which were attached to the through bolts of the washer body. The original casters on the washing machine were used to make the wheels for the conveyance and a small boy was secured to ride on top of the washer and drive the goat. Two metal rods were securely attached to the rear corners of the tub and a clothes line was hung between them. A small washing was hung from this miniature line. The total cost to the contractor-dealer for this original float was \$4.50.

The parade was directed over a line of march which measured about one and a half miles and according to the reports the trip was made without mishap, except for the fact that the goat tried to eat the clothesline. First prize for the most original float was awarded to Cline's Electric Shop and what was more interesting to the firm, it was found that the display had done much to carry the name of the concern to the citizens of San Luis Obispo.



The reproduction of the architect's drawing appearing above, shows the Ambassador Apartments as the building will appear when it is completed. The seventy-eight apartments will be electrified.

Electrified Apartment House Is Being Built in Seattle

A new apartment house which is being erected in Seattle, Wash., will have a complete installation of electrical equipment in its 78 apartments. Electric ranges will be provided in all of the kitchens of the new building and electric water heaters are to be installed in each apartment.

The structure, which is to be known as the Ambassador Apartments, is owned by J. R. Young and was designed by Earl Roberts. When completed the building will cost in the neighborhood of two hundred and twenty-five thousand dollars. Terra cotta and brick will be used on the face of the structure. The building will have six stories and basement and an electric elevator will serve the tenants of the apartment.

Developing Modern Lighting in the Industrial Shop

One of the functions of the modern electrical contractor-dealer is the supplying of accurate information to his customers. Developments in the lighting of industrial plants have been quite rapid in the last few years and it is sometimes difficult for the contractor-dealer to make his customer see that his old methods of lighting are no longer the most economical and efficient. It is the contractor-dealer's work to advise his customers and to make them see that these correct installations will handle the illuminating problem in the most inexpensive and satisfactory manner.

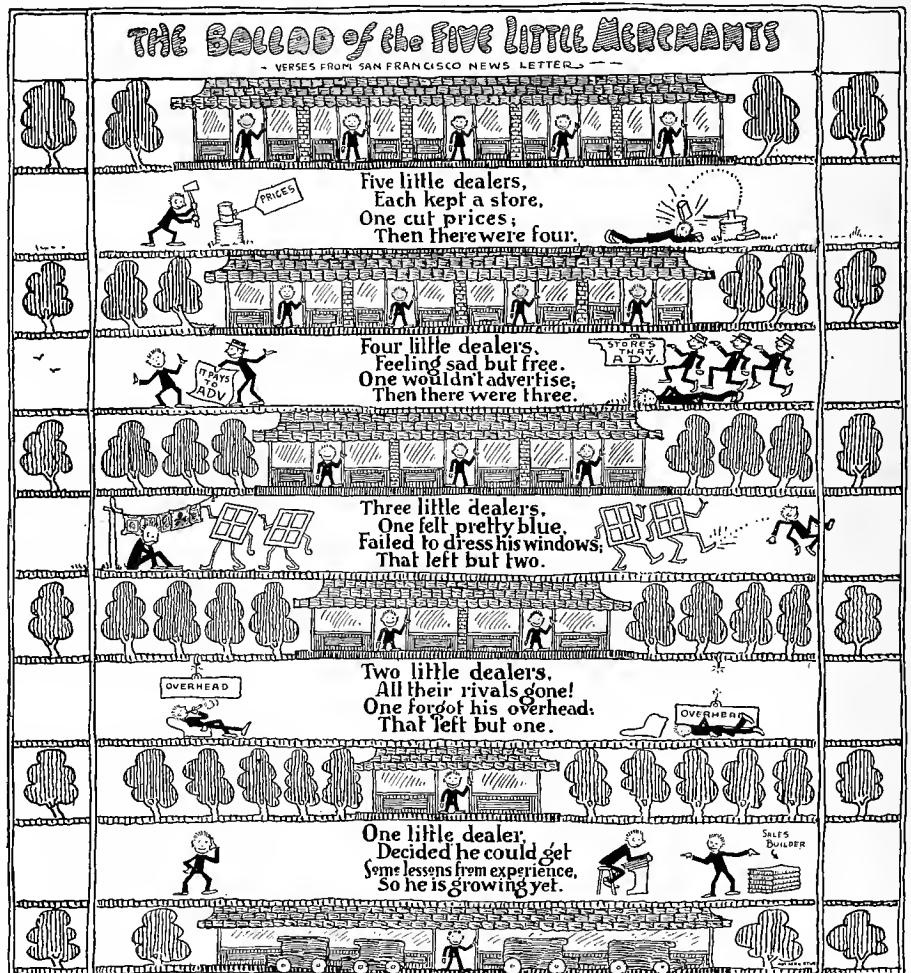
Frequently when fair general lighting is installed in a plant there is a tendency on the part of the executives to believe that the lighting problem is entirely solved. While it is true that in the general run of shops, such as machine shops, overhead illumination of the proper type will provide sufficient illumination, there is generally some very fine bench and machine work that requires high intensity local lighting. This might make it seem that entirely

local lighting would be preferable but this creates dark spaces and corners between machines that are extremely dangerous. Furthermore, good general illumination suffices for many operations,

with local lighting required for fine work only, and instead of maintaining a very high intensity overhead lighting it is often possible to reduce the general illumination, allowing a sufficient intensity for ordinary work and installing some local lighting units for fine work, thereby providing really better illumination at a lower cost.

The Westinghouse Lamp Company recently completed an ideal machine shop installation, upon which numerous tests were made. The overhead illumination consisted of 150-watt gas-filled Mazda lamps, bowl enameled, with Westinghouse R.L.M. reflectors spaced 10 ft. apart. They were mounted 9 ft. 6 in. from the floor to the bottom of the reflector. The overhead units were controlled in groups of four by a ceiling pull switch located in the center of each group, thus permitting a flexible and economical control of units.

The local lighting consisted of 50-watt Mazda lamps with standard bowl reflector and National adjustable arm brackets. These units were mounted on the back edge of the bench in a position that permitted the arm bracket to be adjusted in any position that the workman might desire or require. The overhead system provided an average intensity of 10 foot-candles throughout the room, which was sufficient for ordinary work. The local units provided high intensity lighting, and could be moved from one bench to another whenever special illumination was desired.



According to the Edison Sales Builder, from which the above cartoon is reproduced, to be successful the electrical dealer must maintain prices, advertise, decorate his show windows and figure on overhead. "The one little dealer" is still taking advice and seems to be profiting by so doing.



The feature window display of the Modern Electric Company of Bellingham, Wash., pictured above, tied in with the Tulip Festival held there and proved to be a good means of attracting attention.

Adapting the Show Window Display to the Occasion

**Bellingham, Wash., Dealer Ties in with Annual Tulip Festival
by Using Flowers for Background of Two Displays**

The electrical dealer who believes in an adaptation of the saying "When in Rome do as the Romans," and joins in any celebration that may be conducted in his city, will often find that he is given a considerable amount of attention which he might not get in any other manner. The tie-in with any local function shows that the manager of the firm is desirous and willing to help in the development of his community and in addition presents a special opportunity for appropriate advertising and show window decoration.

The opportunity to install window displays that may be directly connected with the function being held at the time, is perhaps the most valuable one. Attention and interest of the public is already centered in anything relating to the function, and any display which is tied in with it will receive particular notice from passers-by. The average citizen will feel well toward any merchant who shows that he is tying in with the community function and the window display will immediately inform all that pass that the merchant is endeavoring to aid in supporting the function that is being held.

During the Tulip Festival held in Bellingham, Wash., recently, the Modern Electric Company took advantage of the opportunity to tie its window display in with the festival. The Tulip Festival is an annual affair and is one that attracts considerable attention both in the city and among the people who live in the vicinity of Bellingham. The plan of the Modern Electric Company, to tie in with the festival by using tulips in its window display, was particularly advisable.

In its two show windows, the company arranged displays which could be attractively shown by using tulips in the background. An electric washing machine occupied one window while three appliances and two floor lamps were displayed in the other one. The window

which contained the washing machine was arranged in such a way that the machine seemed to be standing in a bed of tulips. Little patches of green grass were strewn over the floor while behind the machine and on each side there were groups of tulips. Two or three of the flowers were to be seen coming from around the base of the washer. A bank of moss, placed on the top of the washer, which was thrown back, contained another bunch of tulips which seemed to be growing there. An attractive fixture hung from the ceiling of the display window and lighted the exhibit at night.

In the window opposite an entirely different plan of design was followed, the idea there being to simulate home conditions as far as the flowers were concerned. The tulips were arranged in a large cut glass bowl and in a wicker basket. A large window box topped the back screen of the window and this also contained tulips. The three appliances that were displayed in the window were given particularly attractive settings by this arrangement and to further enhance the beauty of the appliances, they were surrounded by dark colored velvet. In the case of the coffee urn set, which occupied the center of the back window, the velvet formed a background for the highly polished surface of the appliance and set it off to excellent advantage. The presence of the tulips in the window, in addition to tying the dealer in with the Tulip Festival, gave this window a touch of daintiness which was particularly suitable to the appliances displayed. The two standing lamps and the overhead fixture were used to illuminate the display and fitted in well with the decorative idea.

As another means of supporting the festival, the Modern Electric Company displayed a banner on which appeared the words, "Tulip Town Festival" and a drawing of a tulip.

TO CUT OR NOT TO CUT

By JOE OSIER

"To be, or not to be: that is the question," quoth Hamlet the melancholy Dane—

As he cuffed the carpet in a room of the castle and told the King, the Queen, the Jack, the ten spot and Ol' Polonius—

Who was pinch hitting for the Joker—

Where to get off.

"Whether 'tis nobler in the mind to suffer the slings and arrows of outrageous fortune, or to take arms against a sea of troubles, and by opposing end them"—Ham went on—and—

This is my cue to ankle on the stage and make my smart cracks which begin:—

To cut, or not to cut: that is the question—

Vexing every Contractor-Dealer in the business. Whether it is nobler in the mind to suffer—seeing some double-dealing, price-slashing, sneaking, Si-wash—

Wagging off an award that should have gone to a legitimate bidder or—

Take arms against these pirates and by opposing—end them.

This much I know to be true: the man who cuts prices—who cuts the profit out of a contract—hacks himself to death—and—

Worst of all, he does more than that. He cheapens the industry and besmirches the fair names of the men engaged in it.

(Oh, unhappy day that ushered these scalawags within the gates of the City!)

Still, in spite of the fact that I wear both a belt and suspenders, I am optimistic enough to believe that—

Honest prices and conscientious service will win in the final analysis and that—

Some sweet day, the bid butchers, the price pruners and the cutthroats who masquerade as businessmen—

Will be pinioned on their own pondeirs—

And their throats crammed with a fistful of bum estimates.

And there may their carcasses wave in the wanton breeze—a warning to other men engaged in the industry who are tempted to stray from the path of ethics—

When a particularly favorable contract is out for figures and when the competition is—

Tuff and more of it.

Aye! 'Tis true, nobody has respect for a man who doesn't respect himself, and a man who cuts himself out of a fair profit before he starts to work—surely has placed his feet on the road which leads to ruin—because—

He has lost regard for himself and put behind him every chance for success which he may have had, and—

The way of these transgressors is as unlike the Primrose Path as—

A fair estimate is to a bad guess.

And so, I shall exeunt after proffering my place on the platform to the—

Other bidders were:

INDUSTRIAL NEWS



Colorado Utilities Combined in Public Service Company

Organization of the Public Service Company of Colorado with an authorized capitalization of \$40,000,000, to succeed by merger to the properties of the Denver Gas & Electric Light Company, the Western Light & Power Company and the Lakeside Construction Company, was announced recently after the directors of all of the companies had ratified the merger at special meetings called for that purpose. The Lakeside Construction Company is now building the new \$12,000,000 generating plant which will serve both of the central station companies.

The consolidation, which will be completed before Oct. 1, is to be effected through the exchange of securities of the old companies for 7 per cent cumulative preferred stock in the new organization, according to Clare N. Stannard, vice-president and general manager of the Denver Gas & Electric Light Company. Mr. Stannard, it was announced, will remain in the same capacity with the Denver company and C. A. Semrad will continue as vice-president and general manager of the Northern Colorado Company. Henry L. Doherty, of the Cities Service Company, will be president of the combined companies.

While the consolidation is in line with the modern tendency toward interconnection of electric properties because of the economies in production that come from operating over a large area served by one central station, Denver officials state that the merger is but the natural outgrowth of a situation in which the companies recently found themselves.

Owing to the extremely rapid growth of the business of the two companies, they have been forced for some years to purchase hydroelectric power at wholesale from another company. This source of supply is said, however, to be insufficient to meet the demands of the Denver territory where further enlargement of the local steam plant is impracticable because of water shortage for condensing purposes. The previous interconnection with the Byrdo Company will be maintained, it is believed, as a matter of convenience and protection as evidenced in the transmission line to be built from Boulder Canyon to the new plant at Valmont.

"The formation of this new company," said Mr. Stannard, "means a great deal to the future of Colorado. With adequate power supply which the new company will be able to furnish, new industries will be attracted to the city and state. An infallible rule in the economic development of our country is that communities develop just as their public utilities expand.

"The business of the consolidating companies has had a steady and substantial growth over the last twenty years and the total population to be served directly and indirectly by the new company is estimated at 375,000. Employment will be given to approximately one thousand additional persons with an increased yearly wage in excess of \$3,000,000."

Street Railway Company Intends to Purchase Equipment

In line with its construction and improvement plan, the San Diego Electric Railway has asked the California Railroad Commission for permission to negotiate an equipment trust agreement and mortgage to the amount of \$950,000 for the purchase of 50 new street cars and 10 new motor coaches. This will increase the rolling stock of the company by nearly half.

Each of the new street cars is to be purchased at a cost of about \$17,000 and the motor coaches for districts in which trolleys are impractical, at about \$8,500. The cars will be what are known as the "Universal" type of car, adaptable for either one or two-man operation. Doors will be placed in the ends, pneumatically operated. An indirect lighting system inside the cars will be one of the new features incorporated.

For the building of new lines to both La Jolla and to La Mesa, several boatloads of material have been received via canal. Delay on construction has been occasioned because of re-routing of certain portions of the right-of-way asked by the Atchison, Topeka & Santa Fe Railroad on account of its plans to establish a large railroad terminus in San Diego.

Peruvian Power Company Secures Large Loan from London

W. N. Pearce, secretary to the Commercial Attache, Lima, Peru, has informed the Department of Commerce of the successful flotation in London of a loan for 1,500,000 pounds sterling for the Empress Electricas Asociadas of Lima, which controls the tramways, electric power, and gas services in Lima and its suburbs. This is a large and important enterprise, the majority of whose stock is held in Peru.

In December, 1921, a contract was entered into with the Latina Lux Company of Milan, Italy, whereby the latter was to take over the management and operation of these public utilities and to provide new capital for much-needed improvements and equipment by means of an increase in its capital stock, in preferred and common shares, from Lp. 1,500,000 to Lp. 3,000,000. This loan has undoubtedly been made in compliance with this agreement.

Seattle Company Gets Control of Olympia Utility

W. H. McGrath, vice-president of the Puget Sound Power & Light Company, Seattle, Wash., has confirmed the report that his company has purchased a controlling interest in the Olympia Light & Power Company, Olympia. The deal carries with it the management and operation of Olympia's street railways and the light and power services of the capital city of the State of Washington. Final transfer of the physical properties will not be completed, Mr. McGrath stated, until after a meeting of the new stockholders which will be held in Olympia shortly.

Except for the municipal plants and railways in Seattle and Tacoma and the privately-owned plants in the cities of Willapa and Grays Harbor and in Port Angeles, the Puget Sound Power & Light Company's service now covers all of western Washington and extends into eastern Washington as far as Wenatchee.

For a number of years the company has been furnishing the power, at wholesale rates, for the operation of the Olympia utilities. Following the company's acquisition, last January, of the properties of the North Coast Utilities Company, in southwestern Washington and in Oregon, construction started on a new trunk line between Olympia and Tenino, to tie in with the North Coast lines. The trunk line between Olympia and Tacoma is also being rebuilt. When the latter line is completed and ready for operation, Olympia will be able to draw power from either direction.

Mexican Commission Appointed for Power Regulation

Announcement is made of another forward step in Mexican welfare and development. According to recent reports from Mexico City the Federal Government has organized a National Commission of Motive Power which will have supervision and control over the development of hydroelectric power and the generation and sale of electric energy.

A complete investigation will be made, both at home and abroad, as to the methods of development and control and recommendations will be made for the withholding of waters from power exploitation. The matter of railroad electrification will also receive careful study as will the application of the present federal tax system to utilities.

The Echo Glen Power & Light Association, Everson, Wash., has been incorporated for \$10,000 by F. B. Massey, Harvey Pike and George G. Shelton.

Franchise Granted to Ridgefield Light & Power Company

In the face of a protest by the Clarke County Light & Power Company of Battle Ground, Wash., that the territory included in an application for franchise by the Ridgefield Light & Power Company, also of Ridgefield, capitalized at \$25,000 and organized several years ago, overlapped on territory already served by the Clarke County company, the county commissioners of Clarke County granted the franchise asked by the Ridgefield company. J. E. Hall, prosecuting attorney, gave the commissioners his opinion that they could not deny the franchise simply because the territory was already served by another company.

The Ridgefield company is building a high tension transmission line through the East Pioneer country to Battle Ground. The line will be eight miles long, and carry 11,000 volts. George Snyder, the manager, is supervising construction.

The cities of Hoquiam and Aberdeen, Wash., are considering plans for the installation of an ornamental boulevard lighting system to connect the business sections of the two cities, from the proposed Simpson Avenue bridge at Hoquiam, to L Street, Aberdeen. The proposed system would cost about \$26,000.

Artistic Substation Built for San Diego Company

Spanish Architecture Eliminates Property Owners' Objections Provides Pleasing Residential District Building

One of the problems constantly confronting utilities is the necessity of building substations to meet growth in residential districts. Local building restrictions and the sentiment of the local property owners are frequently obstacles to the construction of a building that will meet the operating needs of the service. In the matter of public service the item of public relations always weighs heavily and every effort is made to harmonize the needs of service with the local situation. A case in point is the new Station C of the San Diego Consolidated Gas & Electric Company, located at Ash and Fourth Streets, San Diego, Calif. This station is located in a semi-residential district, just off the business section, and the problem was to select a type of architecture that would harmonize with both business and residential structures without opposition from owners of either class of property.

San Diego is in the heart of a section rich in remembrance of the early Spanish days, and hence its architecture still carries the influence of the early mission period. To this has been added the Indian characteristics and the touch of modernism which has accompanied the growth of southern California. For that reason the architects, Requa and Jackson, presented a plan embodying the best of Spanish style and prompted by a castle at Salamanca. The building is 45 x 95 ft., of steel frame covered with tile and plaster, and sets back 5 ft. from the property line in order to permit a special landscape treatment with vines and shrubs. This shrubbery permits of artistically concealing the light-

Electricity to Aid in Draining Salt Marsh Area Land

The Pacific Gas & Electric Company is soon to make a line extension into the territory in the vicinity of Tubbs Island, Sonoma County, California. The extension will be made to take care of the pumping load that is expected to develop in the work of reclaiming several thousand acres of salt marsh land.

Tubbs Island is slightly lower than the high water level and is surrounded by a levee. It is the intention to wash this land and remove the salt from the soil. The method of washing the land will be to pump fresh water on the surface and then pump the salt water off. By repeating this process a number of times the land will be freed from salt and made fit for intensive cultivation. The Pacific Gas & Electric Company intends to supply service to 721 hp. of electric motors.

The Coast Power Company has a crew of engineers busy surveying a new line from Brighton to Nehalem. A crew of men is following the engineers digging holes and setting poles. The company plans to have the line completed to Nehalem in the shortest possible time. Industries on the bay will be able to secure power at any time when the Coast Power Company gets its line completed.

ing units used for night illumination of the walls which are 35 ft. high and so built as to give the appearance of a two-story building.

Particular interest attaches to the exterior of the building with its large arched entrances, doors studded with heavy bolts, wrought iron balconies surrounding small French windows, carved stone shields, parapet of Granada tile in varying shades of red, brown, blue and old copper, and its carved stone gargoyles. The walls are constructed to represent huge blocks of red-brown stone.

The interior of the building, which is one-story, has been constructed to eliminate noise and the confusion incidental to activity. All illumination is from skylights. Motor-generator sets are housed in the basement. All poles and overhead construction have been eliminated by means of underground construction to the station. The building is divided into two sections—a switch-board room and the transformer room.

This station, which will be fed from either Station A or Station B, will furnish all direct current for commercial purposes. It was proposed in 1921 but actual construction was not started until about a year ago. The work has been done under the supervision of H. H. Watson, superintendent of construction for the H. M. Byllesby Engineering & Management Corporation in San Diego. Electrical installation work has been done under the charge of A. E. Balle.

The station will be taken over by the operating company early in September. A view of the substation appears on page 162 of this issue.

Utah Power Site Is Subject of Preliminary Filing

Supplementary to several irrigation filings, in which he seeks to acquire rights to water to be conveyed from the Colorado and the Utah lake basins for the irrigation of land in Sanpete and Juab Counties, is a filing by A. H. Christensen of Salt Lake City, Utah. The application calls for the storage of 150,000 acre-feet of water from an unnamed branch of Ferron Creek, in Emery County, with which to develop 60,000 hp. of electrical energy. The application is somewhat lacking in details usually given. The diversion canal, however, is given as 428,260 ft. long.

The application states that the water will be taken through the proposed Gooseberry Reservoir, and thence by ditch, tunnel and pipe line and Oak Creek to the proposed reservoir at Milburn, in Sanpete County, and thence by ditch and pipe line and Salt Creek to a point west of Nephi in Juab County.

Two power plants are proposed in the application, one in Oak Creek, which will operate under a head of 2,100 ft., and one in Salt Creek Canyon to operate under a head of 900 ft.

Seattle Street Lighting Rate Is Held at Old Figure

By a vote of 4 to 3 in the Seattle city council, the present street lighting rate of 4 cents a kilowatt-hour charged by the City Light Department for lighting Seattle streets, was recently approved. The action followed a protest by several councilmen, who pointed out that Seattle was charged a higher rate for street lighting than Spokane or Tacoma.

It was pointed out that if Seattle's municipal light department is piling up a surplus of \$1,000,000, as outlined by Superintendent J. D. Ross, the street lighting rate should be reduced. The Light Department budget calls for \$2,981,066.67, an increase of \$568,691.67 over 1923.

R. P. Schwerin, president of the Federal Telegraph Company, has just returned from an extensive trip to China where he has made arrangements for the erection of five wireless stations. Two of these will be at Shanghai and one each at Harbin, Peking and Canton. The stations will cost in the neighborhood of \$13,500,000 and work has already started under the direction of engineers of the Federal Telegraph Company. The Shanghai station will be the first capable of sending messages direct to the United States and the entire system in China is expected to prove of great assistance to American business interests.

The Pacific Power & Light Company will install hog fuel burning equipment at its plant at Young's Bay, Ore., and will hereafter use sawdust instead of fuel oil there, according to a statement made by L. A. McArthur of Portland, vice-president and general manager of the company. The hog fuel will be barged to the plant and it is anticipated that its use will prove much more economical than the use of hog fuel. The cost of installation will be around \$100,000, much of this sum being spent in Astoria.

Seattle's North Substation Is Under Construction

With the first unit of its Skagit River development well under way, the City of Seattle has begun the erection of a large substation, known as the North substation, to serve as the receiving end in the city for the development. The new station will be located in the residential part of the city and is designed to harmonize with its surroundings.

There will eventually be installed in the substation a maximum of six banks of transformers with the necessary synchronous condensers and switching equipment. The ultimate installation will be fed from the Gorge plant on the Skagit River through two transmission lines approximately 100 miles in length, designed to transmit 90,000-kva., three-phase, 60-cycle current at a receiver voltage of 154,000 volts. The transformers feeding the lines at the generating station are rated at 165,000 volts and have permanently grounded neutrals.

The initial installation will include the equipment for one incoming transmission line at 154,000 volts, one transformer bank, and one 15,000-kva. synchronous condenser. An order for this apparatus has been placed with the Westinghouse Electric & Manufacturing Company and it is now in course of

construction. An electrostatic glow meter will be used for synchronizing on the 154,000-volt side. The stepdown transformer bank has three 10,000-kva. transformers with tertiary windings. Both the 154,000 and 26,000-volt lines are connected with permanently grounded neutrals. The 26,000-volt side is connected to a bus section on which there are three feeders. In the future each transformer bank will have a 26,000-volt bus section, all the sections to be tied together through reactors. At the present time two sections with a total of six feeders will be tied together without reactors and will be fed from the one transformer bank.

The tertiary windings of the transformers are connected in delta at 6,300 volts and are connected to the 15,000-kva. synchronous condenser wound normally at 6,600 volts. Taps are brought out of the transformers for starting the condenser.

The auxiliary equipment consists of a 300-kva. transformer bank; a 100-kw. motor-generator set to be used for an extra exciter, for operating a crane, or for charging the storage battery in an emergency; a 7½-kw. battery charging set; and a 60-cell storage battery for control purposes.

A benchboard having a relay board in the rear with grill work at each end

will be supplied. This desk will be used for controlling the condenser and the incoming line and is drilled for future apparatus for controlling the second line and the tie breaker between the two lines. A switchboard consisting of two switchboards mounted back to back with grill work between will be provided for controlling the 26,000-volt feeders and the voltage regulator equipment for the condenser.

There will also be a temperature indicating board for indicating the temperature of the coils in the condensers and the temperatures in the individual transformers; a station service board for controlling the storage battery, station lights and power, spare motor-generator set, and other miscellaneous circuits; a field control board; and a crane panel. Differential protection will be provided for the condenser and for the entire transformer bank. The 154,000-volt incoming line will be protected with relays and a ground relay.

Construction work on the city's Gorge Creek plant on the Skagit River is rapidly nearing completion and it is expected that the plant will be in operation by the first of 1924. The plant is located 100 miles north of Seattle and will have an initial installation of two 20,000-kva. units operating under a head of 250 ft. A third unit of 30,000-kva. capacity will be installed when the demand for power necessitates. The development consists of a concrete power house, an 11,000-ft. pressure tunnel and a rock fill diversion dam. A single circuit wood pole tower line will be used to transmit the power to Seattle at a voltage of 165,000.

Permits Issued by California Water Rights Board

A permit has recently been granted to Guy Wilkinson of Oroville, Calif., for 15,000 sec.-ft. from the Feather River in Butte County. The permit was issued by the Division of Water Rights of the California Department of Public Works, and according to the permit the permittee intends to develop 47,659 hp. It is estimated that \$300,000 will be expended in developing the power site.

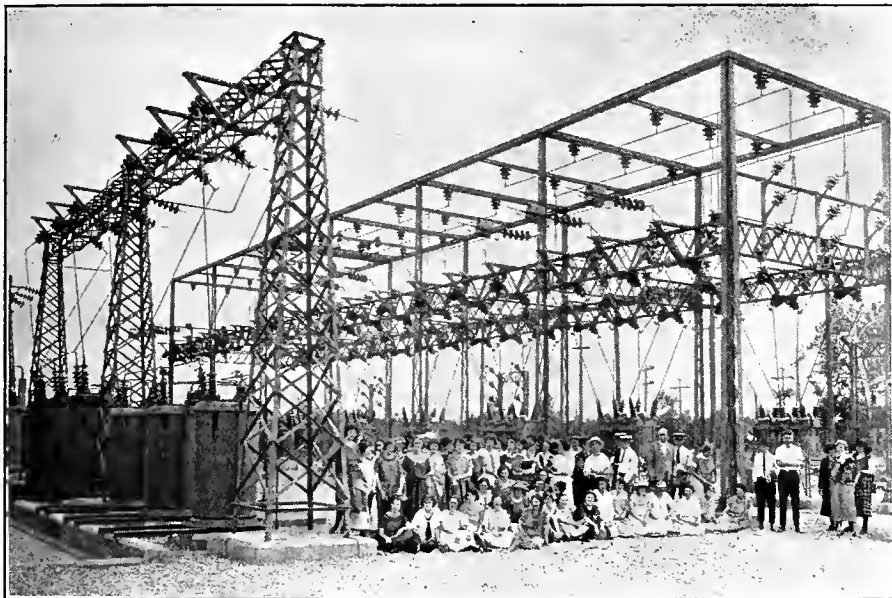
The Division also recently issued to the Excelsior Water & Power Company, Sacramento, a permit to allow the company to take 60,000 acre-feet from Deer Creek in Nevada County, the water to be used for irrigating purposes. The estimated cost of the project is \$329,000.

The Pacific Power & Light Company has just completed extending a new 6,600-volt power feeder line into the industrial section of Hood River, Ore., in order to serve the increased power demands of the Hood River Box Company, the Hood River Vinegar Company, and other industrial concerns. The power concern plans to replace its entire 2,200-volt system with one of 6,600 voltage.

The Southern California Edison Company on Aug. 15 formally opened the new diversion tunnel near Cascada, Calif. This tunnel is unique and worthy of note as it is said to be the largest of its kind in the world, being 21 ft. in diameter and is driven through solid mountain rock. It has been built for the purpose of diverting the waters of the San Joaquin River.



First unit of the Skagit River development of the City of Seattle on the banks of the Skagit River.



Boise Summer Normal School students assembled in the switching yard of the Boise substation.

Power Company Creates Goodwill with Inspection Trips

Realizing that an understanding of the problems of any business are needed before good-will can be expected, the Idaho Power Company of Boise, Idaho, has for some time been conducting parties of interested persons around its plants. Groups of business men, civic bodies, editors, commercial organizations and others have been the guests of the company on these trips.

Recently about one hundred members of the class in physics at the Boise Summer Normal School, were conducted through the Boise substation. The party, in charge of Prof. John H. Sawyer, head of the science department in the Boise High School, was escorted through the substation by members of the engineering department of the power company. The function of each piece of equipment was explained to the visitors and from the questions asked it was evident that they had a considerable knowledge of the theory and operation of a power system.

An attractive illustrated booklet entitled "Boise's Power Terminal," was presented to each of the visitors. This booklet described the early development of power in Idaho and carried the record of progress down to the present time. A map of the company's system, showing the interconnection of power plants, was included in the booklet and a complete description of the Boise substation was presented in a non-technical manner.

New Manufacturers' Agency Is Opened in San Francisco

Announcement has been made of the formation of the firm of Maydwell & Hartzell, Inc., to succeed the Maydwell Company, manufacturers' representatives of San Francisco. The new firm will have offices in the Sheldon Building and will begin business Sept. 1, 1923. In addition to the lines formerly carried by the Maydwell Company, the new organization will act as Pacific Coast representatives for Payne's Bolt Works, San Francisco, manufacturers of pole line hardware.

Poles, crossarms wire and insulators will also be handled.

Included in the agencies which the Maydwell Company turned over to the new concern are six or eight non-electrical lines which include the Russell, Birdsall & Ward Bolt & Nut Company, St. Mary's Wheel & Spoke Company and the Chicago Screw Company.

The personnel of the new company includes C. A. Maydwell, president, who for the past 30 years has been president of the Maydwell Company, manufacturers' agents for heavy hardware and exporters and importers. Harry F. Hartzell, for the past eight and one-half years a director and sales manager of Baker-Joslyn Company, San Francisco, will be vice-president and general manager of the new company, while Eugene Braun, formerly with Baker-Joslyn Company, will be assistant manager.

Maydwell & Hartzell, Inc., will maintain a warehouse at the plant of Payne's Bolt Works, where a complete line of electrical transmission and distribution equipment will be carried in stock.

Another cooking school, featuring the use of the electric range is to be conducted in Portland, Ore., by the Morning Oregonian early in September. The school will be carried on much the same as the one last year. The Edison Electric Appliance Company representative, Raymond W. Turnbull, will again manage the campaign.

Power Resources of Salt Lake Basin Topic of Report

More than 65 per cent of the total power resources of streams entering the Salt Lake Basin have been developed, according to a report made by Ralf R. Woolley, hydraulic engineer of the U. S. Geological Survey. Mr. Woolley is now revising for publication a complete survey of water resources of the basin. Another pamphlet has been prepared and will shortly be published on the resources of the Green River.

Streams entering Great Salt Lake and minor streams of the Sevier watershed now are developed to furnish a maximum of over 200,000 hp. It would still be possible with storage facilities to develop another 100,000 hp. and perhaps more during certain months of the year, according to Mr. Woolley's statement. Of the developed power the Bear River furnishes over 125,000, the Weber 22,000 and other streams 44,000.

Any future development of water power within the state on a large scale will undoubtedly come from the Green and Grand Rivers and their tributaries. There are possibilities, however, for the State of Utah to profit by some of the large projects contemplated on the Colorado River itself.

Diesel Electric Dredge Proves Economical in Operation

The new 15-in. Diesel electric dredge, "Texas" of the Long-Bell Lumber Company, has been at work continuously since July 1 and the owners are highly pleased with the results. Although no exhaustive tests have as yet been made, the economy of fuel as shown by this dredge over steam driven dredges of the same size, is very marked. It is operating at full load on 12 bbl. of crude oil every twenty-four hours.

So far as is known, the "Texas" is the first large dredge to use the Diesel electric idea. It was built in Portland, using the designs of James H. Polhemus, manager of the Port of Portland. The prime mover is a 6-cylinder, 525-hp., 225-r.p.m. oil engine built by the Pacific Diesel Engine Company of Oakland, Calif., and is direct connected to a 450-kva., 2,300-volt, 50-cycle General Electric Company generator. The 15-in. pump was manufactured by the Morris Machine Works and is driven by a 350-hp., 450-r.p.m., 2,200-volt variable speed Allis-Chalmers motor of the slip ring type, using a 12-point secondary drum controller. All auxiliaries including the winch and the cutter head are motor driven.



The "Texas," the first large Diesel electric dredge, is shown in the illustration at the left and at the right may be seen the pump and the driving motor. The generator is placed aft of the motor.

Denver Electrical League Holds Third Annual Picnic

The third annual picnic of the Electrical Cooperative League of Denver, held in that city Aug. 16, established a new record for attendance with a crowd estimated in excess of a thousand. Although bad weather had been expected, judging from the rains of the previous fortnight, the program was so arranged and staged that all of the outdoor events were successfully completed before the picnic grounds were again deluged.

Electrical jobbers and wholesalers closed up for the afternoon as did a majority of the contractors and dealers. As many employees as could be spared from the electric and telephone companies were allowed to attend, providing they cared to do so. Races and special stunts were arranged for all groups and a number of interesting events were provided for the women and children.

"Yes! We Have No Bananas" proved to be a banana eating contest for members of the League advisory board. "Al" Cornell of the Western Electric Company, the shortest man in the group, won the honors, followed closely by F. F. McCammon of the Denver Gas & Electric Light Company.

A tug-of-war between the two biggest electrical jobbing houses in the city, Hendrie & Bolthoff and the Mine & Smelter Supply Company, was won by the former. A special trophy was awarded as the prize. The runners of the Denver Gas & Electric Light Company took first place in the relay race. O. L. Mackell, the League chairman, coached this event and headed the baseball team which won the curtain raiser.

Prizes were awarded for all events, the majority of which were donated by various members of the League. A surplus list was then used for a prize drawing in which all ticket holders were given an opportunity to participate.

During the afternoon the members of the Electrical Cooperative League of Denver, their families and guests who were in attendance at the picnic were assembled before the grandstand and photographed as a group.

Editors Inspect Spaulding-Drum Development of P. G. & E.

Approximately 160 newspaper editors from all parts of northern California were given a comprehensive idea of the immensity of some of the state's hydro-electric developments, when as guests of the Pacific Gas & Electric Company they were conducted over the Spaulding-Drum development of that company. The party left San Francisco on Aug. 24 and returned Aug. 26.

Accompanied by officials of the company, the party was taken over the entire Spaulding-Drum project, inspecting Lake Van Norden, Lake Spaulding, Drum, Halsey and Wise power houses and Rock Creek reservoir.

The trip was in charge of R. E. Fisher, vice-president in charge of public relations and sales, P. M. Downing, vice-president in charge of electrical construction and operation, and H. M. Cooper, manager of the Drum division.

A complete story of the trip together with pictures will appear in the Sept. 5 issue of the Journal of Electricity.

Freak Electric Storm Visits the San Francisco Bay Section

Early in the morning of August 28 there occurred a thunder storm in the San Francisco Bay section which caused considerable damage in a general way. Two oil storage tanks of the Standard Oil Company at Richmond were struck and set on fire with a loss estimated at approximately \$500,000.

The power companies serving this section also suffered some loss but, owing to the general lack of protection against lightning, were remarkably fortunate that the damage was no greater. Damage was chiefly to transformers and distribution lines and was without serious results. The Great Western Power Company suffered no loss other than slight insulation and transformer damage on its 11,000-volt distribution system. The Pacific Gas & Electric Company substation at Richmond was struck with the resultant loss of some switching equipment and service interruption of only a few hours. Street cars were temporarily out of service in some sections but on the whole service delays of all utilities were very slight.

Lightning Interrupts Service in British Columbia

A short but severe electric storm on the morning of Aug. 17 put the British Columbia Electric Railway Company's plant at Vancouver almost completely out of commission, and but for the auxiliary steam plant the city would have been without light and power.

The three main power cables conveying power from Lake Buntzen to Vancouver were put out of commission and only one small line was left undamaged. The Stave Lake plant was struck and the generators were burnt out and two machines were put out of commission at the Earls Road substation.

To carry the load the steam plant of the British Columbia Electric Railway Company was put in operation but sufficient power to carry the load was not available. The light and power customers of the company were given preference over the street railway service.

Rebuilding Transmission Line in the Northwest

The North Coast Power Company Division of the Puget Sound Power & Light Company will spend \$30,000 in raising the voltage of its transmission line between Tenino and Woodland, Wash., from 22,500 volts to 45,000 volts to afford better service in the district served by this line. New transformers will be placed at five different locations and 50 per cent of the line insulation will be replaced.

The Puget Sound Power & Light Company is spending \$35,000 in the construction of a new line from Olympia to Tenino, Wash., in order to connect its North Coast Power Company system with its main system in the Puget Sound region.

Albert S. Crane, vice-president of the J. G. White Company of New York, who is consulting engineer on the Oak Grove project for the Portland Railway Light & Power Company, has reported that following a careful investigation, the plans and specifications for the proposed third conduit from Bull Run to the city would insure a satisfactory job.



Members of the Electrical Cooperative League of Denver, Colo., and their families, and

Deschutes Power Company is to Install Additional Unit

The Deschutes Power Company of Prineville, Ore., is to install an additional unit in its Cove power plant, located near Culver. Construction of a concrete building to house the present and additional units, a concrete spillway, an outdoor substation at the lower tower and other improvements involving an expenditure of between \$80,000 and \$100,000 are included in the program. The Cove plant supplies electricity for Prineville, Redmond, Culver, Metolius and Madras.

The new unit will consist of a 1,200-hp. horizontal water wheel directly connected to an 875-kva., 2,200-volt, 3-phase, 60-cycle generator. The new unit will increase the capacity of the Cove plant to approximately 1,900 hp. Twenty men will be employed on the work all winter. When fully developed by the addition of the third unit the total horsepower will be 3,100. A concrete spillway is to take the place of the wooden spillway and the penstock openings will be equipped with steel gates to permit the shutting down of either unit without discontinuing the service.

The new outdoor substation at the lower tower will be built and equipped with three 400-kva. self-cooled, 2,200-volt to 22,000-volt transformers, an oxide film lightning arrester and the necessary switching apparatus. A new switchboard with four panels will be provided in the power house.

Owners of the property in the devastated district of Astoria, Ore., have won their battle for the placing of all power and light and communication wires underground in the rebuilt portion of the city. An ordinance has been passed requiring that all wire installations be of the subsurface type.

Allen R. Moore of Mt. Vernon, Wash., is planning to install a diversion dam of concrete 30 ft. high and 160 ft. long on top and 100 ft. at the bottom, with a spillway over the rimrock. The hydro-electric project will cost about \$100,000 and will provide power to be used in Skagit County.

Electric Railroads Give Relief to Utah Flooded Area

As a result of a terrific thunderstorm and cloudburst which struck the canyons east of Farmington and Willard, Utah, on the evening of Aug. 13, several lives were lost and many thousands of dollars' worth of property destroyed.

At Farmington, which is on the line of the Bamberger Electric about half way between Salt Lake City and Ogden, a wall of water estimated to be between twenty and thirty feet high rushed down Farmington canyon, drowning seven persons and depositing many tons of boulders, dirt and debris across some of the farms in its path, completely blocking the state highway and the tracks of the Bamberger Electric. After working unceasingly for forty-eight hours the railroad tracks were cleared, and for several days the electric road was the only means of transportation, its facilities being used to good advantage in relieving the flood sufferers, in the transportation of supplies, etc.

At Willard, Utah, about thirty miles farther north, on the line of the Utah-Idaho Central, similar conditions were brought about as a result of the heavy storm, two lives being lost and much property destroyed. After the tracks of the electric road were cleared, not only were its trains used to provide the only means of transportation until the state highway could be cleared, but its right-of-way was offered and used as a highway for automobile traffic for two hours each day, which assisted materially in relieving highway traffic, and furnished stranded automobile tourists a means of getting through.

An automatic railway power station has been ordered from the East by the Portland Railway Light & Power Company for installation at a point near Risley station on the Oregon City line, according to an announcement made by F. I. Fuller, vice-president of the company. This will be the first automatic railway power station installed at any point on the company's lines. The estimated cost of the station is \$30,000 and it is expected to be completed by Jan. 1, 1924.

Books and Bulletins

LIGHTING CIRCUITS AND SWITCHES

By TERRELL CROFT, consulting engineer. 465 pages, 5½ by 8 in., 556 illustrations. \$3. Published by the McGraw-Hill Book Company, Inc., New York.

Discussing as it does all phases of lighting circuits and switches, the volume fulfills the need for a practical reference volume on this subject. Although the simpler circuits and their descriptions have been included, the important function of the book seems to be to record diagrams and explanations of the more complicated circuits and control methods. The material relates almost entirely to lighting circuits and switches for interior building applications operating on low potential systems. Most of the matter concerns 110-220-volt, two or three wire systems. Some data which relate to electric heating circuits and switches are included.

The principal National Electric Code rules which concern the subjects under discussion are interpreted in the proper places. How to comply with these Code rules is also explained.

The book should prove of utmost value to the electrical contractor or for that matter, to practically every man who is in any way connected with electric lighting.

The Ohio Brass Company, Mansfield, Ohio, recently published the July issue of "O-B Bulletin," in which appears considerable information relative to electric welding and bonding. There is also some information concerning street railway and power line construction.

The Cutler-Hammer Manufacturing Company has just issued its circular No. 3038 dealing with a new T-Slot receptacle and a new 10-amp. cord connector which is designed for use with lamp socket devices.



dens, Aug. 16, for the third annual picnic which was held by that organization.

Meetings

Arrangements for Convention of Engineers Are Made

Papers dealing with high voltage equipment and the operation of high voltage systems are to be among those presented at the Pacific Coast Convention of the American Institute of Electrical Engineers, according to the program which has just been mailed to members of that organization in the West. The convention is to be held at Del Monte, Calif., Oct. 2-5. Convention headquarters will be at the Hotel Del Monte and hotel accommodation cards have been sent to the Institute membership.

The technical sessions of the convention will be held on the morning and afternoon of Oct. 3 and on the morning only of Oct. 4 and 5. The annual golf tournament in competition for the "John B. Fiskien Cup" will be held on the afternoon of Oct. 4. Various sight-seeing trips and entertainment features have been arranged for the convention delegates.

Two post-convention trips have been scheduled for members who care to visit points of interest on California's super-power system. The Southern California Edison Company has invited those attending the convention to visit the Big Creek developments of that Company. From Fresno the party will be the guests of the Southern California Edison Company which will return them to that city. Those who intend to take the trip will leave Del Monte Oct. 5 at 6:05 p.m. and go by special train to Fresno. The second inspection trip will be one covering the electric substations serving the San Francisco Bay territory. The stations of both the Pacific Gas & Electric Company and the Great Western Power Company will be visited. This trip will be made from Del Monte by automobile.

Field Work Head Makes Visit to Local Associations

Kenneth A. McIntyre, supervisor of field work for The Society for Electrical Development, Inc., recently returned from a trip to San Francisco where he attended a convention of the Pacific Coast Electrical Association and addressed a meeting of the commercial section. En route he visited Salt Lake City, Utah, Medford and Portland, Ore., Tacoma, Seattle and Spokane, Wash., Victoria and Vancouver, B. C., and Minneapolis, Minn.

After a brief stay at headquarters Mr. McIntyre has departed on another of his trips to assist in "Putting Cooperation to Work" in Toronto, Grand Rapids, Minneapolis, Milwaukee and Chicago. The commercial lighting activity being organized by Minneapolis electrical men is claiming much of Mr. McIntyre's attention. This exhibit which entails the use of a complete office building bids fair to be the forerunner of another phase of business building work that can be handled cooperatively to the benefit of all branches

of the industry. The general plan and results of this activity will be incorporated in a monograph on Commercial Lighting which the Society contemplates issuing.

Electragists Will Hold Annual Convention in October

The twenty-third annual convention of the Association of Electragists International will be held at the Hotel Washington, Washington, D. C., Oct. 9-12. Sessions of the executive committee will be held on Oct. 8, and if necessary on Oct. 12 after the convention has closed.

Speakers at the convention include the following representatives of the electrical industry: Charles L. Edlitz, commissioner of New York City; Miss Sheridan, vice-president of the Detroit Edison Company; and Earl E. Whitehorn, of the McGraw-Hill Company. A number of other prominent men have been asked to address the convention. Mr. Edlitz will talk on "Back to Quality, Sane Costs and Fair Dealing."

The Puget Sound Power & Light Company recently entertained several hundred people of Summer, Wash., at the company's summer camp for employees at Kirtley Lake Lodge. The company entertained with band music and boat races. Since the company's camp opened two months ago, hundreds of employees and their families have been entertained there.

The visit of L. W. Davis, secretary of the Association of Electragists International, to Boise, Idaho, was featured by a banquet in Mr. Davis' honor on the evening of Aug. 8. After the dinner Mr. Davis gave a talk on various problems confronting the contractor-dealer. About 25 were present, including several out-of-town contractors and dealers.

COMING EVENTS

Pacific Coast Division, Electrical Supply Jobbers' Association—

Quarterly Meeting—Gearhart-by-the-Sea, Ore.
Sept. 5-7, 1923

Convention of Electric Clubs—

Annual Convention—Association Island, N. Y.
Sept. 16-19, 1923

Rocky Mountain Division—National Electric Light Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

Colorado Public Service Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

American Institute of Electrical Engineers—

Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

Association of Electragists International—

Annual Convention—Washington, D. C.
Oct. 9-12, 1923

The combined annual convention of the Colorado Public Service Association and the Rocky Mountain Division of the National Electric Light Association will be held at Glenwood Springs, Colo., Sept. 17-19. No definite announcement of the program has been made as yet. It is expected that a large crowd will be in attendance at the convention. Headquarters will be located at the Hotel Colorado.

Cooperative Club Heads to Meet at Association Island

The commitments of representatives of local electrical cooperative organizations to attend Camp Cooperation III are mounting up rapidly and there is every promise that Association Island, where this gathering is to be held from Sept. 16-19, will be filled to capacity. The island where electrical cooperation on a national scale first saw the light, is the ideal place for a gathering of this nature as it offers exceptional facilities for the necessary combination of recreation with business sessions.

This is the second opportunity offered leaders of and believers in local cooperation to exchange ideas with other cooperators from all parts of the United States and Canada. Complete information as to the purposes of the meeting, directions and costs can be obtained from The Society for Electrical Development, Inc.

Interest in Electrical Display Aroused by Speakers

To arouse the interest of the business and professional men of Seattle, Wash., in the electric home and appliance show of the Electric Club of Seattle, members of that organization made speeches at the principal clubs of the city before the home was opened on Aug. 25. The home will be open until Sept. 8.

Roy Worth, Seattle manager of the Pacific States Electric Company, was in charge of the committee of speakers. The speakers and the organizations before which they appeared were as follows: Norwood W. Brockett, Puget Sound Power & Light Company, members council of the Chamber of Commerce; J. J. Agutter, J. J. Agutter Company, Rotary Club; and George Reiniger, Kiwanis Club.

Pacific Coast Jobbers to Hold Quarterly Meeting

Elaborate preparations for the regular quarterly meeting of the Pacific Coast Division of the Electrical Supply Jobbers' Association which is to be held at Gearhart-by-the-Sea, Ore., Sept. 5-7, 1923, are being made by the northern members of the organization. The sessions will be held at the Gearhart Hotel.

In addition to the various business sessions there will be an open meeting at which prominent figures in the electrical industry will address the members of the association. Entertainment will include the customary golf tournaments and the golf dinner.

The California delegation is planning to leave for the Northwest on Sept. 3. Several of the members are making the trip by automobile. Gearhart-by-the-Sea is located on the sea coast near the mouth of the Columbia River, 115 miles from Portland.

An ordinance is being prepared by the city council of San Diego to make compulsory the illumination at night of all fire escapes by the use of signs bearing the words "Fire Escape" and lighted independently from the general lighting systems of the buildings in which they are located. Formerly this requirement was made only in the case of theaters, but the new ordinance would make it compulsory in all buildings having fire escapes.

Manufacturer, Dealer and Jobber Activities

Jones-Thorne & Company, Inc., of Los Angeles, have recently announced that the firm of J. P. Bell & Company have joined with them and that J. P. Bell, formerly the head of the concern that bears his name, has been elected president of Jones-Thorne & Company, Inc. Emmett H. Jones is vice-president and general manager of the Los Angeles jobbing house.

The **Beardslee Chandelier Manufacturing Company**, Chicago, Ill., has recently prepared a consumer booklet entitled "Distinctive Designs for Home Lighting." This booklet will be sent to residential prospects in any city if the local electrical dealer will give a list of such prospects to the manufacturer. A special letter will accompany the brochure. The booklet contains a number of illustrations of lighting fixtures adaptable to home use and the text explains the uses of the various designs.

The **Roller-Smith Company**, New York, N. Y., has published Bulletin No. 10 which supersedes a similar bulletin issued in July, 1922. The new bulletin illustrates and describes the small size instruments for radio control panels that are manufactured by the company. The line includes a.c. and d.c. voltmeters, ammeters and radio frequency ammeters.

The **Simplex Electric Heating Company**, Cambridge, Mass., has just put on the market an electric heater to be known as "Simplex 'Sunbowl Junior' Electric Radiator No. 95." The heater is of the radiant type and is for use on voltages between 104 and 120. The heating element is of a cone shape.

The **Western Electric Company, Inc.**, has recently prepared as a sales help to dealers an illustrated folder. The folder describes the company's washing machine in a non-technical manner and is designed to be sent to prospective washing machine customers. Space is left for the dealers to imprint their names on the folder.

The **National X-Ray Reflector Company**, Chicago, Ill., has recently developed a window flood light that is larger than any that has been manufactured in the past. The new unit is known as "Hippo" No. 88 and uses a 300, 400 or 500-watt standard Mogul base lamp.

L. M. Page, merchant engineer of San Francisco, has moved to 1135 Mission Street in that city. Mr. Page represents the following concerns: Ames Iron Works, Bury Compressor Company, Manistee Iron Works Company, Standard Steam Turbine Company.

The **Jones Electric Company**, of Portland, Ore., has been organized by John W. Jones, Eva Jones and Charles Conkling of that city. This firm will deal in electrical machinery, fixtures and appliances.

The **Packard Electric Company**, Warren, Ohio, has recently prepared a new book entitled "Installation and Care of Transformers." The booklet is meant to present information which will permit transformer users to get more service from the equipment. The company has also prepared a load value card which is intended to give information

concerning the correct fusing of various size transformers.

The **United Electric Company** has been incorporated in Denver, Colo., as an exclusive lighting fixture and accessory manufacturer's agency, with complete stocks to be carried in that city. W. J. Keating, formerly of the Electrical Supply & Construction Company of Denver, is president and manager of the new organization. Temporary headquarters are being maintained at 3890 Zenobia Street until satisfactory offices can be secured in a downtown building.

The **Apex Electrical Distributing Company** has recently put on the market a new electric cooker to be known as the "Rotarex Kook-Rite." The new cooker is built along the lines of a fireless cooker and its operation is some-

ers of the new concern which will have its office and shop situated at 289 Hawthorne Avenue.

Continental Pipe Manufacturing Company, Seattle, Wash., has recently been awarded the contract to manufacture and install 40 miles of a 16-in. gravity line creosoted Continental wood pipe, for the city of Rawlins, Wyo. This line is to furnish a municipal water supply. It consists of a network of small machine banded pipe leading into larger continuous wood stave pipe and has many interesting engineering details which have been worked out by the Weiland Engineering Company of Pueblo, Colo. The contract involves a total of about \$600,000.

The **Westinghouse Electric International Company** has issued leaflet 20034, printed in English, Spanish, and Portuguese, on the domestic heating appliances available for use with a 32-volt light and power plant. The appliances that can now be used on farms or in other isolated places not served with central station current include irons, turnover toasters, warming pads, coffee percolators, curling irons, and table stoves. Practically all the conveniences of electricity, which is adding to the comfort and ease of every-day life in an uncountable number of ways, are thus no longer restricted to the thickly populated areas as heretofore but are just as available at a remote ranch or mountain camp as in a city home. The fact that these appliances have been developed to such a point of perfection that they can be guaranteed for one year adds to their practical utility in isolated localities.

The **Electric Shop**, of Burley, Idaho, due to the fact that it has outgrown its present quarters, has moved to a larger store in the Idaho town. According to E. G. Frank, manager of the concern, the new location is much better adapted to the needs of the firm, which does an electrical contracting and merchandising business. A good sized display window is available to the store and in addition a large stock room is located in the rear of the building.

John H. Cushing, of Weiser, Idaho, has recently separated his electrical store from his plumbing and heating shop in the Idaho town. The electrical establishment is located adjacent to his older store where he originally combined the three lines. Mr. Cushing plans to carry a complete line of fixtures and appliances in the new location. It is his intention to enter the electrical contracting business on a larger scale as he has had considerable experience in the work.

Lester Kulp, 143 W. Austin Avenue, Chicago, has just invented and put on the market a theft-proof electric light bulb. The lamp is easily removable by proper authorities and is sold at regular market prices. The bulb is sold in

The **Wholesale Electric Company**, of San Francisco, has recently had a one-story concrete building erected at the rear of its establishment at 817 Mission Street in that city. By adding this building the company has secured direct access to Minna Street. This will aid greatly in handling heavy materials.

The **Irvington Varnish & Insulator Company** has taken over the selling agency of the output of the Harvey Wire Company, Newark, N. J., manufacturers of enameled wire, silk and cotton covered wire, etc.



"Doc" Libbey, the Simplex Electric Heating Company's San Francisco representative, is doing a lot of things lately to make himself famous. Apart from equipping the largest apartment house in San Francisco with his ranges he has acquired a two-gallon hat and has just returned from a trip abroad—to Tia Juana, Mexico.

what similar. Heating elements are placed below the bottom of the oven and underneath the cover of the cooker.

The **H.M.H. Electric Company**, 31 North First Street, Portland, Ore., has recently been taken over by F. E. Myers, who until recently was manager of the concern. Under Mr. Myers' direction the company will specialize in repair and maintenance of generators, motors and general heavy electric power equipment. The name of the firm has been changed to the F. E. Myers Company and will be located at the same address.

The **Fisher Electric Company** has just opened new quarters at 4711 South Moneta Avenue, Los Angeles, for the conducting of a retail electrical merchandise business.

The **Cooperative Electric Company** is the name of a new firm which will specialize in repairing and installing electric motors in Portland, Ore. O. W. Newton and F. A. Hackett are the own-

Personals

J. F. Orr, sales manager of the Idaho Power Company, has recently been appointed chairman of the national range committee of the N.E.L.A. Under Mr. Orr's direction, the Idaho Power Company has done some extremely progressive work in the electrical merchandis-



J. F. ORR

ing field during the past few years. Its record of ranges per residence consumer on its lines is probably higher than that of any other power company in the country. The Northwest Electric Light and Power Association was a pioneer in the investigation of this subject, the masterly report on electric range servicing which was compiled under the leadership of W. R. Putnam, now vice-president and general manager of the Idaho company, being one of the first studies made in that field. Mr. Orr has already laid out constructive plans for the coming year which promise valuable results of interest to all central stations in the West.

George C. Tenney, for the past two years associate editor of the Journal of Electricity, has been made managing editor of that publication.

Dr. T. Harada, one of Japan's most famous engineers, passed through San Francisco recently on his way home. Dr. Harada, who is principal engineer of the home department in charge of all government construction except railways, has been visiting some of the large eastern manufacturing centers.

Ray E. Chatfield, for the past two years executive secretary of the Electric Service League of British Columbia, has resigned to return to California. Mr. Chatfield's plans for the future are as yet indefinite. No successor to Mr. Chatfield has been appointed by the British Columbia League.

F. C. Flueger, of the Atlas Electric Sign Corporation, New York, is a recent visitor to San Francisco.

H. H. Jones and **D. L. Roscoe** of the San Diego Consolidated Gas & Electric Company, San Diego, have just completed a trip to San Francisco in the interests of that utility.

C. E. Magnusson, dean of the department of electrical engineering, University of Washington, has been appointed chairman of the committee on student branches of the American Institute of Electrical Engineers for the coming year.

Clark Baker, of the Oakland Lamp Works, recently gave before the Oakland Electric Club a very interesting and complete description of the new type lamp just produced for motion picture projecting machines.

R. W. Buckles, manager of the Seattle branch of the Westinghouse Lamp Company, together with **J. L. Casey** of Portland and **J. S. Brittain** of Los Angeles, representing the same company, are attending a general sales meeting of the Westinghouse Lamp Company at Garden City Hotel, Garden City, Long Island.

H. A. Fanslow of the San Francisco district office of the Westinghouse Lamp Company is on an extended tour of the Northwest.

Ray W. Murphy, Pacific Coast manager of the Westinghouse Lamp Company at San Francisco, has been spending the past two weeks in Los Angeles and southern California.

E. J. Wallis, Pacific Coast district manager for the Western Electric Company, located at San Francisco, was a recent business visitor in Seattle and other Puget Sound cities.

L. A. Safford, for four years manager of the Pacific Power & Light Company at Kennewick, Wash., has been announced as manager of the Walla Walla branch of that company, to succeed **Charles H. Walters**. Mr. Walters goes to Asheville, North Carolina, where he assumes the superintendency of the power company. Mr. Safford has been connected with the Pacific Power & Light Company at Hood River, Toppenish, Sunnyside and Portland in various capacities.

W. S. Rosplock, sales manager of the Pacific Manufacturing & Electric Company of Los Angeles, manufacturers of the Everhot Electric Water Heater, passed through San Francisco recently on his way back from a business trip through the Pacific Northwest and the northern California section.

Easton S. Howard, southern California representative of the San Francisco Compressed Air Cleaning Company, recently spent some time in San Francisco.

C. J. Gratiot, formerly connected with the Torrington Company of San Francisco and now sales manager of the Bissell Company of Toledo, was a recent San Francisco visitor.

Harry Strunk, manager of the experimental department of the Edison Electric Appliance Company, Ontario, Calif., is a recent San Francisco visitor.

F. G. Baum, consulting hydroelectric engineer of San Francisco, has been made chairman of the committee on electrical transmission and distribution for the American Institute of Electrical Engineers for the coming year.

H. E. Stephenson, domestic appliance salesman with the Pacific Gas & Electric Company at Santa Rosa, has been transferred to San Francisco.

H. N. Nelson, of the Enterprise Electric Works, San Francisco, is spending several weeks of his vacation on a trip through Mendocino and Humboldt Counties.

S. M. Kennedy, vice-president in charge of public relations of the Southern California Edison Company, has gone to New York to attend a meeting of the public relations section of the National Electric Light Association. Electric Company of Los Angeles, has just recently returned from a very extended eastern trip. Mr. Hall spent most of his time while East in Chicago, but managed to attend the convention of the National Association of Electric Jobbers.

James R. Deering, who for a number of years was connected with the Los Angeles office of the Westinghouse Electric & Manufacturing Company as office manager, has recently resigned from that organization. Mr. Deering has joined the Weber Showcase & Fixture Company of Los Angeles in the same capacity as when with the Westinghouse Company.

E. A. Hutchins of the Seattle office of the Baker-Joslyn Company has been transferred to the San Francisco office of the company to fill the vacancy caused by the resignation of **Harry F. Hartzell**.

Hubert Kidder, formerly with the Roentgen Appliance Corporation, San Francisco, has been appointed domestic appliance salesman with the Pacific Gas & Electric Company at Santa Rosa, Calif.

C. E. Grunsky, consulting engineer of San Francisco, has received the nomination to the presidency of the American Society of Civil Engineers for 1924. Inasmuch as this nomination is regarded as equivalent to an election, this adds one more to the distinguished list of westerners who have been selected to lead the great national societies for the coming year. Mr. Grunsky has served for some time on the governing board of the A.S.C.E., first as director and then as vice-president. He was a member of the first Panama Canal Commission and later under President



C. E. GRUNSKY

Taft, served as consulting engineer to the Secretary of the Interior. For the past few years his work has been of a general consulting nature, with headquarters in San Francisco. Among other official positions he is president of the California Academy of Sciences and vice-president of the Pacific Coast Division of the Society for the Advancement of Science.

Roy G. Munroe, assistant commercial manager of the Denver Gas & Electric Light Company, has won another prize offered by the Cities Service Company, this time for a slogan "Cities Service Company Co-ordinates Service and Courtesy." First prize was won by Miss Helen Steiner of the Ohio Public Service Company with "An Industrial Democracy."

C. E. Painter has been elected president of the Salt Lake City chapter of the American Association of Engineers. **C. R. Ellis**, assistant state road engineer, was chosen vice-president, and **H. H. Hitchcock** was made secretary-treasurer. The board of directors consists of **C. C. Burt**, **H. C. Means**, state road engineer, and **G. F. McGonagle**, former state engineer.

George W. Barker, recently appointed associate editor, *Journal of Electricity*, was born in Nashville, Tenn., in 1885. His education was received in Massachusetts schools, including Massachusetts Institute of Technology and Clark University. His father, **George F. Barker**, was a consulting and practicing electrical engineer and was for some time superintendent of construction and erection for **E. P. Allis**—now **Allis-Chalmers Company**. Mr. Barker's early experience was with the **New England Telephone & Telegraph Company**, with which company he was for some time supervisor of traffic, Eastern Division, with headquarters at Portland, Maine. About eleven years ago he left the East to come to California and at that time became affiliated with the **Standard Carbon Company**, Los Angeles, with which firm he remained until joining the force of **National Carbon Company** with headquarters at San Francisco. From 1918 to 1921 he was in charge of that company's business and office at Seattle, covering the Northwest and Alaska. In 1921 he returned to California and shortly thereafter joined the sales force of the **Pacific Gas & Electric Company**, being made, within a short



GEORGE W. BARKER

time, sales engineer in charge of domestic applications. For the past seventeen years the major portion of his time and effort has been devoted to constructive sales building and promotion, particularly with reference to development of sales campaigns. He has an extensive acquaintance with the entire electrical trade of the western states and Alaska.

Carl M. Heintz, who has been associated with the Westinghouse Electric & Manufacturing Company in Los Angeles for many years, has severed his connections with that company. Mr. Heintz started with the company as messenger boy and at the time of his resignation was manager of the publicity department. He leaves the company and the electrical industry to try his hand in a new field and henceforth will be associated with **Andy Brown** of Los Angeles in the fertilizer industry, being especially interested in the importation and sale of Chilean nitrates. Mr. Heintz was one of the most active members of the **Los Angeles Electric Club** and the **Pacific Coast Electrical Association**. His loss will be keenly felt by the industry in which he has taken such an active part.

L. A. Nott, San Francisco district manager, **Sangamo Meter Company**, is visiting the northern coast states combining pleasure with business.

Amos Betts, chairman, **D. F. Johnson** and **Loren Vaughan** of the **Arizona Corporation Commission**, have recently conducted an extensive investigation of rates and service at **Nogales**.

Earle G. Barr, an industrial engineer of wide experience, has just been appointed manager of the industrial department of the **Portland, Ore., Chamber of Commerce**. Mr. Barr is a charter member of the **National Association of Cost Accountants**, is author of the **International Accountants' Society** text on systematizing and cost accounting and also of the **LaSalle Extension University** text on "Appraisal Engineering." His experience embraces more than fifteen years of private and professional engineering work including the development of the industrial investigation department of the **American Appraisal Company** of **Milwaukee**.

Percy A. Cupper, former state engineer of Oregon, whom the governor recently failed to reappoint at the expiration of his term, announces that he is opening an engineering and law office in **Salem** and will probably remove his activities later to **Portland**. **Rhea Luper**, former assistant in the engineering department, has been appointed his successor in the state office.

Clair V. Merriam, who has been power salesman for the **Puget Sound Power & Light Company** of **Seattle, Wash.**, has been appointed sales manager of the **Eastern Texas Electric Company** with headquarters at **Beaumont, Texas**. He is a graduate in electrical engineering with the class of 1922 at the **University of Washington** and during the war served in the ambulance corps in **France** and **Italy**.

Melnotte McCants, who has been serving as assistant to the president of the **Market Street Railway**, has been appointed general manager of that company. Mr. McCants has had extensive railway experience with both steam and electric roads and was for a time traveling passenger agent for the **Southern Railway**. He is a member of the **American Electric Railway Association** and is the author of a system of training street car employees for courteous service.

H. L. Erlicher, formerly assistant to the general purchasing agent of the **General Electric Company**, has been named assistant general purchasing agent, effective Aug. 1, 1923.

Harry F. Hartzell, director and sales manager of the **Baker-Joslyn Company** for the past eight and a half years, has resigned to become associated with **C. A. Maydwell** in the firm of **Maydwell & Hartzell, Inc.**, **San Francisco**, manufacturers' agents for electrical transmission and distribution equipment. Mr. Hartzell began his career in the electrical industry in the engineering department of the **Westinghouse Electric & Manufacturing Company** at **East Pittsburg** after studying jurisprudence at **Bucknell University**. Two years later he was transferred to the **New York office** of the **Westinghouse company** and



HARRY F. HARTZELL

while there took a special course in electrical engineering at **Columbia University**. In 1913 he was sent to the **San Francisco office** of the **Westinghouse company**. A year later he joined the sales force of the **Maydwell Company**, at that time jobbers and exporters of heavy hardware and machinery. In 1915 he became one of the organizers of the **Baker-Joslyn Company**, taking the position of director and sales manager, a post he has held until his resignation.

A. W. Leonard, president of the **Puget Sound Power & Light Company**, **Seattle**, recently left with a party of friends for a fishing trip in **British Columbia**, to be away about three weeks. In the party were **William B. Grambs**, **David L. Huntington** of **Spokane**, **Richard Leonard** and **Donald C. Barnes**, all men engaged in the electrical industry.

A. F. Darland, **Tacoma** engineer, has been appointed superintendent of electrical construction of the **Cushman power project**, completing the organization of the staff which will have charge of **Tacoma's municipal power development**. Mr. Darland has been employed on the **Cushman work** as electrical engineer. During the war he directed the electrical department of the **Todd Drydock & Construction Company**, and was formerly with the **General Electric Company**.

Herbert P. Tewksbury, formerly superintendent of the meter department, has been appointed superintendent of the newly organized stores department of the **Denver Gas & Electric Light Company**. With the establishment of this department the organization of the **Denver utility** has been made to conform with the organization outlined for all **Doherty subsidiaries**.

Trade Outlook

San Francisco

Despite the fact that business in some lines has fallen off slightly many manufacturers are working to capacity and in the main general conditions appear normal for the season. Current buying is conservative but sound and leading retail houses report increases of approximately 15 per cent in sales for the first six months of 1923 as compared with the same period of last year, while sales for the current month are ahead of those of a year ago.

Building continues at a satisfactory rate even though material prices are still high and labor costs have not been materially reduced. There is considerable commercial and industrial building.

Retail sales of appliances, which suffered somewhat during the summer vacation period, have picked up noticeably and prospects are good for a satisfactory fall volume.

Deliveries of merchandise from eastern manufacturers are better and prices are firm with some indications of advances in certain lines.

Shipping reports show an increase of tonnage amounting to about forty per cent increase over July of 1922 while bank clearings show an increase of approximately thirteen per cent.

Returns from fruit and other crops bid fair to be quite satisfactory with a resultant effect on buying.

Los Angeles

Los Angeles building operations for this year continue without cessation and have passed the total of all building done in Los Angeles for the entire year of 1922. The total for this year is \$122,045,017 as compared with \$121,206,787 for the year 1922.

Los Angeles stood at the head of a list of fifty cities of the United States in increase recorded in postal receipts which continue to increase and for the year ending June 30 show a gain of 24.36 per cent over the preceding year.

Commerce through the Port of Los Angeles increased notably, according to figures released this week by the Board of Harbor Commissioners.

Retail sales continue well in excess of last year while wholesale buying has been stimulated by the Annual Fall Market week. Oil production shows a steady increase but new promotion has fallen off, as has the sale of oil well supplies. Collections are fair to good.

Denver

The housing shortage has been greatly relieved and local building experts believe that the record construction program is about finished with the exception of commercial structures and industrial projects. There has been a marked falling off in the number of building permits issued during August. High labor and material costs are also responsible factors.

Serious damage was done to railroads and highways in the mountain region by the heavy rains of the past month, precipitation for the first nine months ex-

ceeding that of the entire previous year and all recorded averages. Transmission systems also suffered materially although there were no marked interruptions. The rainfall, however, has been reflected in the bumper crops reported.

Increasing prices of foodstuffs and clothing are discouraging sales. There is a precautionary note to be heard in nearly all lines of business. Electrical merchandise is suffering accordingly in sales although washing machines are moving better than for a number of months. The usual summer depression in the sale of heating appliances is noticeable.

Seattle

High production and a slight seasonal decrease in domestic orders have reduced lumber sales approximately 10 per cent under the cut for the past two weeks. Many mills are working more than one shift a day in anticipation of a strong fall market.

No car shortage is expected during the fruit and harvest season, due to empty car routings during the summer months. This is fortunate as the crops throughout Washington are expected to be considerably heavier than last year. Bumper crops of potatoes, oats, barley and apples are predicted.

New construction in Seattle has shown a slight falling off, although permits issued in July were virtually double the total of those issued during July of last year and the total to date has already passed that of 1923. Prices are steady and labor is sufficient for demands. The month of August is expected to show a slight increase in building.

There is a general slowing down of the electrical supply trade, due, primarily, to the general slackening in building construction. The slow-down has extended over the last 30 days, but has not affected the general electrical business, which continues good, the first half year's business being considerably greater than for the corresponding period of last year. The outstanding figure in the supply trade of this territory is the sale of electric ranges, which has been much in advance of any other single article. Prospects for the remainder of the summer are not particularly encouraging, but the fall business is expected to show an increase, to continue well throughout the year.

Salt Lake City

Industrial activity in Salt Lake City and surrounding territory is more pronounced than it has been for some time, with consequently a very satisfactory condition as to employment. Construction of new homes and apartment houses continues to be an important factor in the general business situation, and is furnishing a considerable market for hardware, lumber and builders' supplies, as well as electric wiring and appliances.

The condition of sugar beets in Utah as of Aug. 1 was 97 per cent of normal, which foreshadows a successful sugar-making campaign during the early fall months.

Work is progressing rapidly on the Utah Power & Light Company's Soda power development near Soda Springs, Idaho. About 600 men are now being employed on this project.

In the mining districts there is continued activity, in spite of the unfavorable silver situation. It is reported that there is a shortage of experienced metal miners in some districts.

Electrical jobbers report favorable conditions, with considerable of an increase in business as compared with the same period last year.

Portland

Portland business has slackened slightly during the past few weeks. Part of this is due to the usual mid-summer dullness. The unsettled lumber market has also had its effect. Lumber being the principal manufactured product of the district, any change in the lumber market reacts noticeably, but close observers find nothing alarming in the situation. Excessive construction costs have curtailed building operations somewhat but lumber production is still proceeding at a rate above normal. Foreign shipments have increased and partly offset smaller domestic orders. Lumber stocks at the mills are far below normal.

Building permits during July of this year show a decrease over July of 1922, the total for the year to date being below that of a year ago.

Oregon crops are in fine shape but wheat prices are low and this is certain to affect the buying power of the wheat grower. Apples are beginning to move. Much greater interest is being shown in cooperative marketing than ever before. This is being encouraged by the Chamber of Commerce as being one of the ways of increasing the net return to the grower.

Spokane

The heads of forty lines in retail, wholesale, manufacturing, jobbing and transportation in Spokane were interviewed early in August and it was determined that the business for the first quarter of 1923 was 24 per cent greater than for the same period in 1922. Five department stores report an increase of 11.4 per cent in net sales for July, 1923, over sales for July, 1922.

The lumber business has experienced the usual summer slump, but it is expected that a strong revival will be felt during the fall.

On Aug. 16, the estimated wheat crop for eastern Washington and northern Idaho was 65,000,000 bu. The net amount available for sale will probably be more than twice as much as for 1922. Harvesting has proceeded satisfactorily, yields of from 30 to 40 bu. per acre having been obtained. Even with the probable lower price, the crop will produce a large return. The latest figures for fruit production indicate 17,000 carloads of apples for Wenatchee and for Spokane Valley, with fair prices in prospect.

The labor situation has been good and mining operations are increasing.

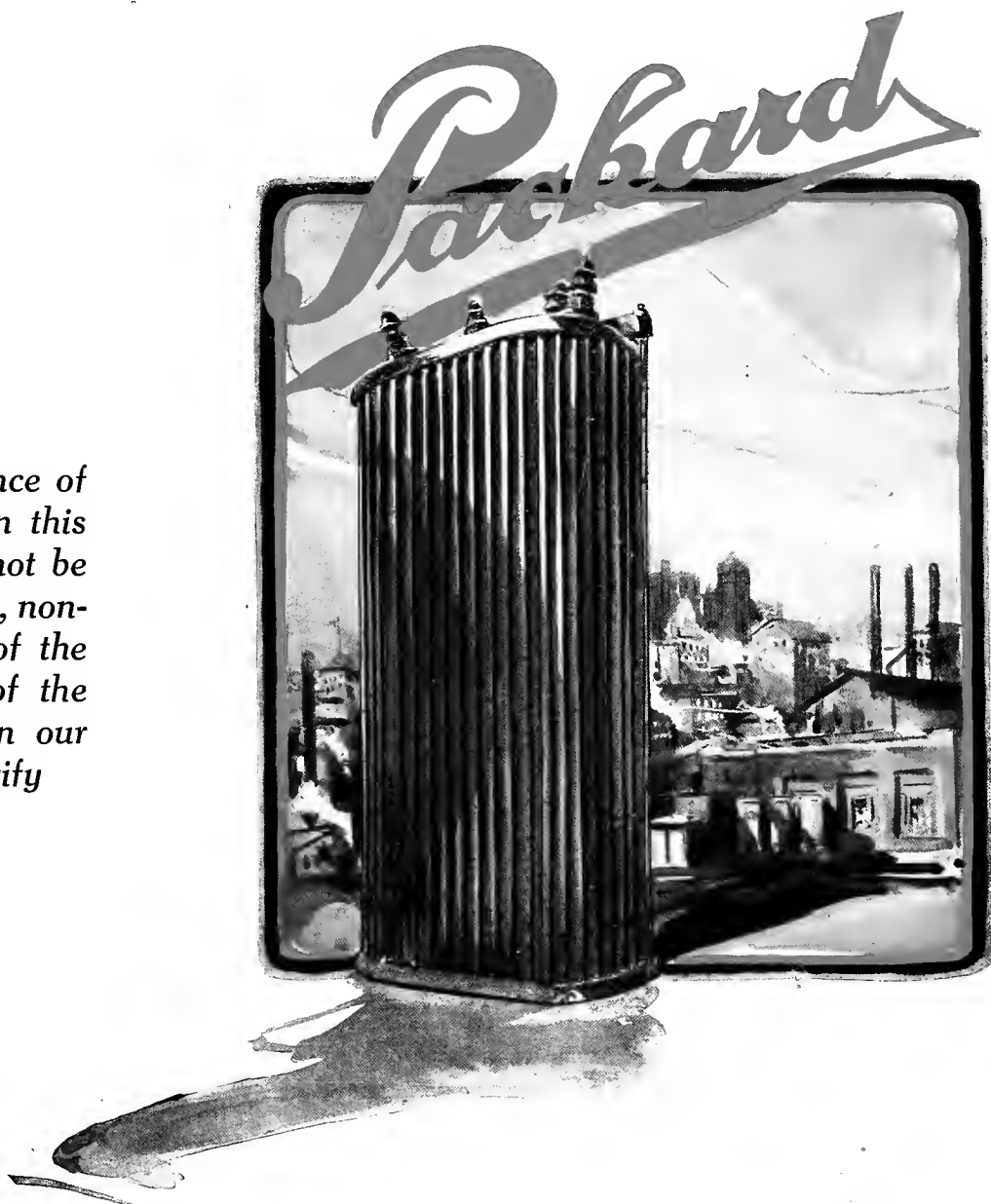
Journal of Electricity

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September 15, 1923

San Francisco

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ORDINARY wire wouldn't do. One kind after another was tried by the X-Company for the connecting circuits on the back of their controller panels.

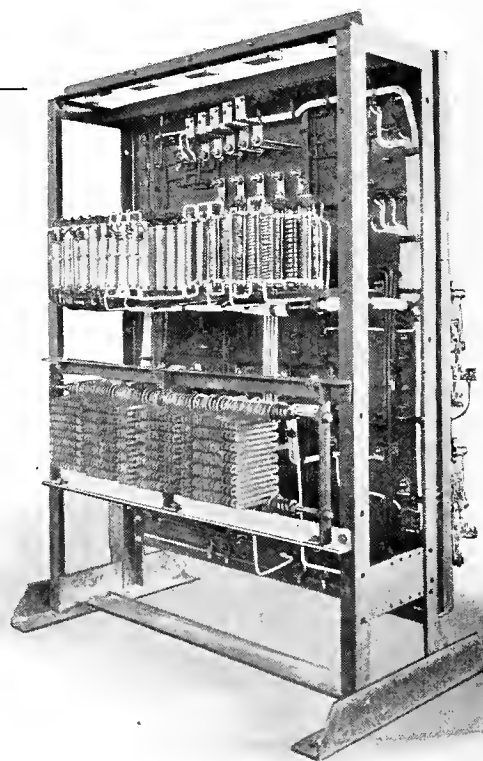
But purchasers of X-Elevators continued to report that the insulation on these connections melted when the tube, wire, or grid resistances became overheated.

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Journal of Electricity

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G. W. BARKER, Associate Editor
J. W. OTTERSON, Assistant Editor

G. C. TENNEY, Managing Editor

ROBERT SIBLEY, Consulting Editor
CLOTILDE GRUNSKY, Contributing Editor

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An Analysis of the Channels of Distribution

FULLY half of the literature on business subjects written during the past few years has dealt with distribution. It has been the vital question at sales conferences and conventions. The consensus of opinion seems to be that something is wrong with the entire scheme of distribution and that steps must be taken for its remedy. Especially has this been true of the electrical industry. Prices are too high, and although the best thought in the industry has been devoted to the problem, no solution has been forthcoming.

Realizing the importance of the situation, the Journal of Electricity has undertaken a field study of conditions in the West, the results of which will be disclosed in a series of articles commencing with



the Fall Market Number, October 15, 1923. The study was made by a national authority on marketing and merchandising, Dr. E. A. Kincaid, associate professor of commerce, McIntire School of Commerce, University of Virginia. Until a year ago Professor Kincaid was a member of the faculty of the University of California, where for six years he offered courses on marketing and merchandising.

For the past two months he has interviewed many leaders in the electrical industry on the Pacific Coast relative to the question of distribution of electrical products of all kinds and the results of his studies cannot help but be of great interest to electrical manufacturer, central station, jobber and retailer. This is but one of the many special services which the Journal of Electricity is offering to its readers.

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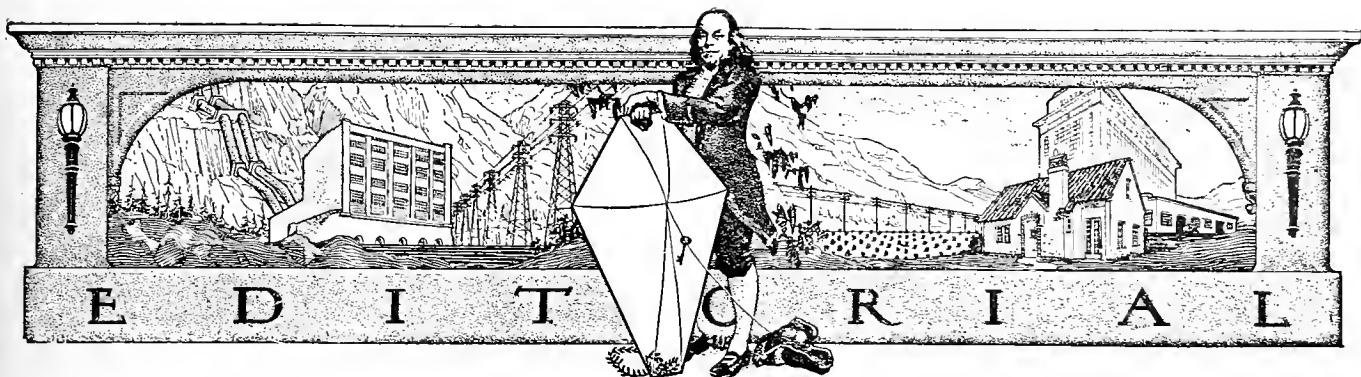
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In Union There Is Strength

WEST of the Rocky Mountains great things are accomplished. Out here the kilowatts are a little "fatter," the prunes a little larger, the trees a little taller and the climate—words will not describe it. We acknowledge all these things; we make speeches about them. Whenever we travel to those more benighted and less enlightened sections of the country which know not the warmer hand-clasp and the brighter smile (according to the poem), we expect to be congratulated on our accomplishments and to be asked to tell about them for the benefit of others. And we are congratulated and we do make a speech and undoubtedly others do benefit. Witness the influx of money and people! And then along comes some nation-wide enterprise in which we as westerners are asked to cooperate and we withdraw, convinced that our problems are exclusive unto ourselves and that we need no assistance from the outside.

AS a matter of fact, quite a few of the world's inventions and one or two of the progressive ideas in management and executive control have been worked out in other quarters than on our coast. The eastern business man and the eastern electrical man—and by eastern, of course, we refer to the entire trans-Rocky population—are progressive individuals. In some respects they

do even better than the western man. There are more of them, for one thing. While it may be a little more difficult for them to get things accomplished because of the time required to reach the entire field, once told the story, they know how to spend money effectively and achieve results. The West would gain fully as much as it has to give in ideas and enthusiasm through association with its eastern brethren.

NOR should it be overlooked that the West is not yet quite independent financially. Most of the industrial manufacturing activities on this coast are branches of eastern concerns—many of the power companies are associated with larger holding companies whose headquarters are elsewhere. Much of the expenditure for purposes of progress must receive its O.K. from officials in the head offices located in the East.

IT is important that the West keep itself sold to the rest of the country. It cannot afford to antagonize the Easterner by a constant refusal to play ball. The League of Nations idea does not appeal to all people—but there can be no legitimate objection to the League of the United States idea and the western section of the North American continent would do well to entangle itself in a few alliances with progress elsewhere than in its own little sphere.

Is Hetch Hetchy to Be Another Municipal Fiasco?

THE engineers in charge of San Francisco's Hetch Hetchy project have urged the serious consideration of the sale of power developed as a byproduct to one of the power companies. There is a very strong sentiment among the more substantial element of the business men in that community against the city's going into the retail power business. In fact, were it only clear that it was possible to do so, the power would probably be disposed of at the earliest possible moment to existing agencies at the power house and the city left free to devote its time to the development of its water system.

The irony of the situation is that there is a very grave question as to whether such a satisfactory solution to the question is legally permitted. It is certainly time to examine the situation frankly and to have its complications and absurdities understood.

For instance, it seems not to be generally known that under that extraordinary congressional document known as the Raker Act, under the provisions of which the entire development is made, San Francisco is expressly forbidden to sell its power wholesale to any but an irrigation district or a municipality and that these in turn are forbidden to resell to any individual or corporation contemplating resale. It is true that later on in the measure it is stated that all power not taken by the Modesto and Turlock districts or municipalities within their boundaries may be sold commercially, but there is no reason apparent to a layman why this should be supposed to nullify the former provision. It is clear that San Francisco may sell the power to the Turlock or Modesto districts or to any other irrigation district or municipality or it may retail its power somewhere between the power house and the coast, or it may bring the power to San Francisco and there distribute it retail. It may be possible to evade the wording of the Act by "appointing one of the power companies as a distributing agent." It does not appear that there is any other course open to San Francisco under the Raker Act, and this last possibility opens the danger of a law suit.

No one with the interest of San Francisco at heart would wish to see it go into the direct sale of power. The irrigation districts at the present time generate their own power and are not in the market for more. When it comes to retailing the power, the first and most obvious obstacle, of course, is the initial investment in the distribution system required and the burden of the complicated organization necessary to operate such a system—an organization which must in some measure overshadow the more important though simpler functions of the water system and which would constitute a grave political danger. The citizens of San Francisco have already three times voted not to raise the city bonding limit and are not likely to vote to make this enormous further investment.

A further deterrent to undertaking retail distribution of the power is the fact that the Modesto and

Turlock districts or any municipality within their boundaries will have at all times a prior right to all power generated, excepting only such as may be required for municipal public purposes by the city of San Francisco. Interfering sale to private persons or corporations is specifically disallowed. Thus it appears that were San Francisco to put in a complete distribution system and acquire customers who must be served, it might still some day find itself at the will of the districts, entirely without power of its own generation to distribute over its lines.

The further restriction is made that no power can be sold at less than cost—rates to be fixed by the Secretary of the Interior. The Act goes on to state that the price fixed "shall include a fair proportion of the cost of conduit, lands, dams and water supply system." It has as yet been only roughly estimated what this cost may amount to, but it is safe to assume that if a fair allotment is made, rates on this basis will be high—too high to compare favorably with those now possible to San Francisco under service from private companies.

The fact that it is not probable that the water supply end of the project will function at all for many years and that because of the extraordinary provisions of the Raker Act it can never bring in the return it should, lays a further burden upon the power development which, under one interpretation, might be asked to carry the entire investment for an unknown time. Apparently the implication involved in that clause of the Raker Act which forbids the diversion of any water from the Tuolumne beyond the San Joaquin Valley until the waters "which it (San Francisco) now has or may hereafter acquire" have already been used, has not been appreciated. This relegates the Hetch Hetchy water system definitely to the role of an auxiliary. No one who has studied the situation can overlook the fact that the Spring Valley system must be purchased before the water is brought into San Francisco. Part of the construction has already been made with that in mind. Not only are the distributing pipes necessary, but the Raker Act (again!) has promised away so much of the water in the Tuolumne to the irrigation districts that in dry seasons San Francisco will actually not have enough to serve the needs of its population from Hetch Hetchy development and local sources will be called upon. It is apparent, then, that what will happen is that the present system will go on being used, and only at such future date as it becomes inadequate will San Francisco be permitted to bring in any water from its mountain sources—and then only such small quantity as will fill up the gap. The grandchildren of the present generation of taxpayers may conceivably be so numerous that they will be using a diluted form of Tuolumne water, but in the meantime, San Francisco's tremendous investment in Hetch Hetchy as a water supply development will be bringing in practically no return. Is it supposed that the sale of power can possibly bear the burden?

This does not complete the list of entanglements which a perusal of the Raker Act will disclose, but

it is enough to show in what a precarious position San Francisco now stands. Almost any attempt to conduct business in a logical and economical way will offer the basis for a law suit. It is all very well to say, as has been continuously implied by those in charge, that no one is going to bring such a suit—there is always someone who will desire to discredit a city administration for political reasons, or who stands to gain by the trouble, to bring up such questions.

Of course, San Francisco should never have accepted such conditions. They were in a strategic position in their ownership of the water rights and they could have afforded to have refused the provisions of the bill and to have returned home to bide a later day and a more reasonable Congress and administration.

All this, however, is past. The question is what to do now? The first reaction to a perusal of the Raker Act is the suggestion that no further money be spent. Over \$45,000,000 has already been appropriated, and it is stated that \$32,000,000 more will be necessary, with no guarantee that this will do more than deliver the water at San Francisco boundaries, with the distribution system still to be provided. Why should good money be thrown after bad? Of course, this is an idle speculation and not a solution. Hetch Hetchy represents too great an investment to be abandoned. It will be completed and both power and water will be brought to the point of delivery.

There remains but one sensible course. This is to take the matter again to Congress and with the wisdom of experience and the hope of a less inimical personnel in that body, ask that the provisions of the Act be modified. There is not the opposition at the present time that there was when the enterprise was undertaken. Nature lovers, rival water systems and owners of other water rights are now all resigned to the inevitable. Some of them are enthusiastic advocates of the present system. It is even possible that with their present provisions for their own storage, the irrigation districts might be willing to consent to less conditional terms which would hold fewer pitfalls for San Francisco's future development. The sensible arrangement of selling power at wholesale to one of the power companies should be permitted without question.

The questionable side to this municipal enterprise has been glossed over long enough. It is time that the public generally understood the facts—and it is also time that something be done about them.

There Is Still a Good

Market for Washing Machines

SOME bright statistician has compiled figures which indicate that only one-third of the world's population is completely clothed, while one-half is only partially clothed and one-sixth not clothed at all. This is sad news for the washing machine manufacturers. On the basis of 1,700,000,000 people on the surface of this sphere, there are about 120,000,000 fully clothed families in the market for electric

washing machines. After the homes of all of these have been equipped, the washing machine manufacturers will have to adopt a new type of educational advertising. Instead of "Wash Electrically" as a slogan they will be forced to coin some such phrase as "Wear More Clothes." It is not difficult to imagine the enterprising washing machine salesman of the future trying to convince some Papuan housewife on the island of Zamboango that she should have an electric washing machine for laundering the family's gee-strings.

The Furniture People Have Done It

THERE is an institution in San Francisco known as the "Furniture Exchange." Actually, it is a cooperative institution that consists of a permanent exhibit of furniture and furnishings. It is housed in a seven-story concrete building. Space is contracted for in any desired amount, and exhibitors may or may not, as they choose, keep a salesman in attendance. The institution itself keeps a staff of salesmen whose duty it is to conduct those interested to such exhibits as they may be interested in, to give them all information they desire, and to bring them in personal contact with the direct representatives of the exhibitors if they so desire.

Competing lines are found side by side, almost, without drawing even a semblance of a spark of static, in fact, the lion and the lamb lie down together in the most approved Utopian way. Imagine what an advantage it is to a buyer to find displayed under the most attractive surroundings a comprehensive exhibit of what he is interested in, without his having to metamorphose himself into a sleuth and track the merchants to their lairs from one end of a great city to the other!

This is not all. The "Exchange" has telephone service, shipping service, a competent traffic department, a credit department, a board through which all sorts of claims are adjusted without recourse to that expensive luxury known as the law, and attends to numerous other details especially useful to the out-of-town buyer. This is service that is SERVICE.

Suppose, just suppose, that the electrical fraternity could, and would, take a leaf from the book of the furniture men. Suppose, again, that there was such an institution, similarly organized, through which the electrical idea could be established and sold to everybody, the retail trade, the consumer. Let us suppose some more, that there was a service department, to which the housewife could come with her little electrical troubles and receive prompt, efficient and courteous attention. And now for one more suppose, that electrical cooking classes could be conducted for the Mary Anns, the Hashimura Togos, or Sing Fats, or whoever it is that is the director general of the culinary department.

The idea seems to appeal strongly, and is it so impossible of accomplishment? The furniture people have done it. Are they so much more intelligent, more broad in their perspective, than the electrical fraternity? Who will answer this question?

CURRENT COMMENT



Japan has suffered the greatest catastrophe in the history of the world. As this is written, meager reports indicate that the loss of life has been enormous while the property damage has been irreparable. The most highly developed and thickly populated section of the nation has received a blow from which it will take many years to recover.

Some Important Aspects of the Japanese Mishap

As that section of the United States contiguous to the scene of the disaster the Pacific Coast is highly interested in the details. Trade relations have been such that this section has had a closer relationship with the Orient and with Japan in particular.

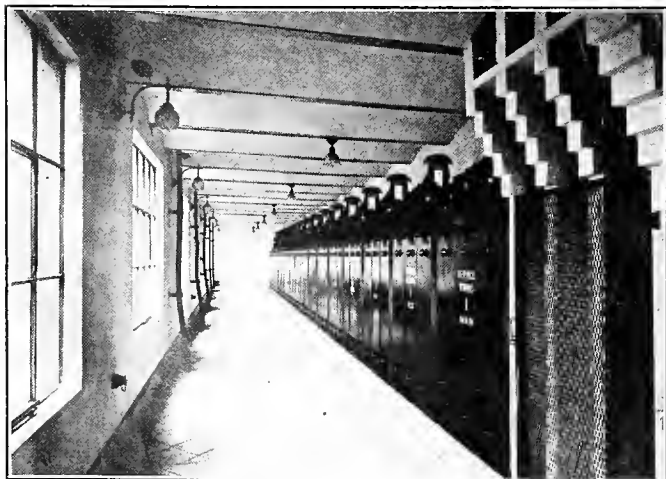
Reports indicate that the offices of both the International General Electric Company and the Westinghouse Electric & Manufacturing Company in Yokohama have been totally destroyed although the staffs of both of these organizations are safe. In a very cryptic radio message, J. R. Geary, manager of the Yokohama office of the I.G.E., stated that that city was in ruins and that temporary headquarters for his company had been established at the Imperial Hotel, Kobe. Frank Fagan, well known figure in the electrical industry on the Pacific Coast, who recently went to Japan for the I.G.E., has cabled that both he and his family are safe.

The engineering aspects of the disaster are many. Services of practically every utility serving the earthquake area have been totally demoralized. Properties of hydroelectric companies, electric rail-

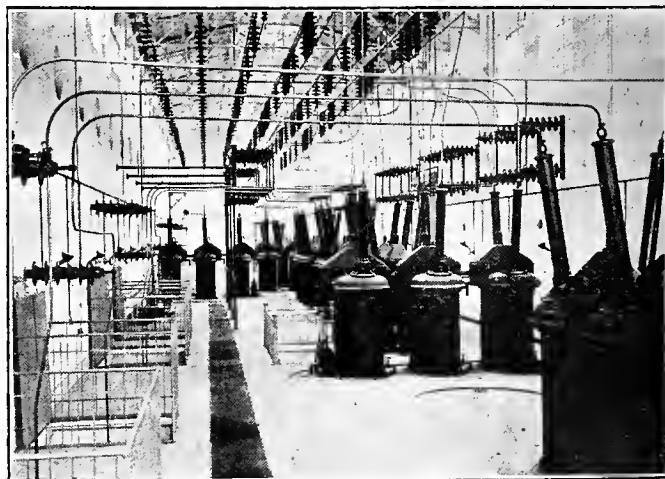
ways, steam railways, gas companies and water works have been crippled or entirely destroyed. Enormous sums will be required to rehabilitate these systems. Recent information to the Journal of Electricity indicates that the industrial power demand for the city of Tokyo alone was 180,000 kw. for 1922 and was increasing at the rate of 13 per cent annually. Nearly all factories were highly electrified.

For instance, the plant of the Tokyo Electric Company, Ltd., associated with the General Electric Company, which was located near Kawasaki and Tsurumi, midway between Tokyo and Yokohama, is reported to be a total loss. This factory supplied a large percentage of the lamps used in Japan and had an output of 20,000,000 lamps annually. It employed 3,500 workers, both men and women. In addition to lamps, the factory turned out switches, sockets, fixtures, X-ray equipment and other electrical devices. It possessed an extensive laboratory and was one of the model factories of Japan.

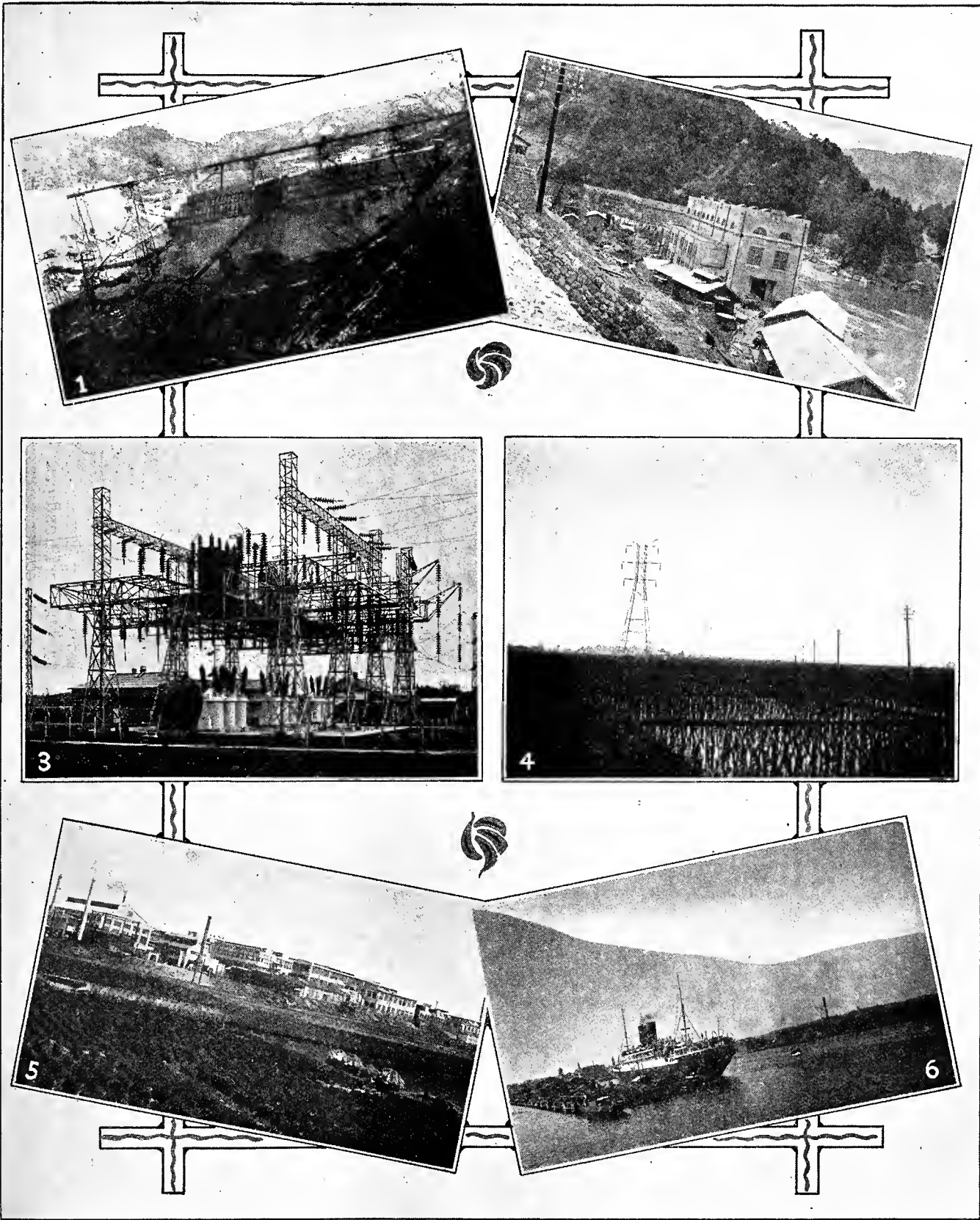
Through the kindness of Thebo, Starr & Anderson, consulting engineers, San Francisco, we are able to offer our readers several exclusive views in and around Tokyo and Yokohama, as well as some of the hydroelectric properties which supply the city with energy. This firm is supervising the construction of a large hydroelectric project for Daido Electric Company, one of the largest Japanese central station companies. The extent to which some of these large hydroelectric plants have been damaged is unknown, however it is certain that they were located within the area affected by the earthquake shocks.



Interior of the 11,000-volt switch room of one of the plants of the Inawashiro Hydroelectric Power Company, near Tokyo.



A view of the 115,000-volt switches in one of the hydro plants of the Inawashiro Hydroelectric Power Company.



JAPAN'S ELECTRICAL INDUSTRY SUFFERS FROM EARTHQUAKE

Reports would indicate that the electrical industry in and about Tokyo suffered heavily. Through the kindness of Thebo, Starr and Anderton, San Francisco, we are able to furnish our readers with some interesting views of the stricken area. No. 1 is the Oi dam of the Daido Electric Company on the Kiso River, 60 miles above Nagoya in the earthquake region. This company serves Tokyo and the surrounding districts. No. 2 is the Yomikaki power house of the same company on the Kiso River, also reported to be in the area affected. No. 3 is a view of a 115,000-volt outdoor

switching station of the Inawashiro Hydroelectric Power Company on the outskirts of Tokyo. No. 4 shows the same company's 115,000-volt transmission line leading into Tokyo. No. 5 is a view of the factory of the Tokyo Electric Company, Ltd., at Kawasaki on Tokyo Bay. This plant, which manufactures the majority of the lamps used in Japan, is in the heart of the industrial district between Tokyo and Yokohama and is believed to have been totally destroyed. No. 6 shows the harbor and water front at Yokohama. This city was practically obliterated by earthquake, tidal wave and flood.



In the above chart, which is taken from Mr. Baum's "Atlas of U.S.A. Electric Power Systems," the suggested national super-power lines are shown. It will be noted that the Colorado River power will be carried north and east for the electrification of the trans-continental railroads; and south and west to the Arizona copper mines, the irrigation districts along the lower Colorado and to the southern California markets.

Power Must Bear Burden of Development on Colorado River

By Frank G. Baum

IN the published pamphlet (Senate Document 172) of the Interior Department, regarding the development of the Colorado River for flood control, irrigation and power, I think there are some statements that are not sound from a power or business standpoint. It is stated that the entire cost of the dam for storing the water should be paid for from the sale of power. To make such a statement without showing that it is feasible to do so seems to me not a very good way to attract the power users to come and use the energy or take it to present or new markets.

It is also stated that the dam should be at Boulder Canyon which is at the lower end of the river. This would of course give a power supply as variable as the water demands for irrigation. There is no power system at the present time large enough to absorb such a large variable amount of power. The final regulation of the water for irrigation should be at the lower end of the river, but if we wish to develop power to the largest amount possible will practically complete control of the river for irrigation, then we must have a number of storage reservoirs on the upper sections of the river. Also, if the power is to be sold to the largest possible amount, we must look for the widest possible market. The Colorado River development, therefore, if it is to be paid for as far as possible by the sale of power, must be attacked as a power problem—assuming that we satisfy the conditions that flood control of the river is desired, and that the water shall be available for irrigation uses.

What are the power markets for this power, considering the entire Colorado basin?

1. Arizona copper mines, etc.
2. Arizona irrigation, etc.
3. Southern California power market.
4. Santa Fe Railway electrification.
5. Power market developed along railway and as far east as the Missouri River.
6. New industries.

(The future power market for northern California can be better supplied from the Columbia River basin than from the Colorado.)

A total power market of several hundred thousand horsepower should be available, in order to carry the plan with the largest possible contribution from the sale of power, and to make it practicable to lay out a power transmission plan along economic lines.

Let us assume that the sum of these possible power markets is 500,000 to 750,000 hp. Then there

MR. BAUM is an engineer of wide experience and reputation. He has carefully studied the Colorado River development situation and has reviewed it from a national as well as a local viewpoint. Full recognition is given to such matters as finance; power sales possibilities; governmental interest; power control; irrigation and flood control. This article cannot but be of interest to every engineer and central station executive in the country.

comes the question of the best location for the power plants. It will of course be much better to have part of this power developed on the lower section of the river—at the Diamond Creek or Boulder Creek site or at both sites, depending on the amount of power to flow to western Arizona and southern California.

But it will be at once seen

that the power for the Arizona copper mines and for the Santa Fe Railway electrification east of central Arizona, and the power to go to the Colorado, New Mexico, Kansas and Missouri River markets can be better supplied by plants in the upper sections of the river. The distance of transmission is not the controlling factor, but large dependable economic power supplies, good load factor and large stable markets are often more important than length of transmission.

I believe, therefore, a comprehensive plan for the development of the Colorado River can not be economically made without getting the greatest possible power supply as a byproduct and putting this power to useful work. The amount that may be charged against this power can not be arbitrarily set off, because this power must come into competition with other power all along the line from the West Coast to the Missouri River.

The tendency is for irrigation to exaggerate the value of the byproduct power, and this generally comes from comparing the retail rate for electric light with the wholesale rate for power. The electric light business alone will generally not support any water power development in California or anywhere else. This is evidenced by the fact that practically all the early water powers were failures until the power loads were developed. The electric light business compares with the railway passenger business, and the power business compares with the freight business. Without the freight business the railroads would fail and without the power business the water power companies would fail.

Power Markets Major Factors in Development

It is therefore essential that we consider in a businesslike way how we may market the largest possible amount of power to be developed on the Colorado, and this will then be largely the determining factor in the location of the dam sites and power sites. The power markets are the major factors, if the power is to carry the major cost of the development. Also the power plan of the Colorado should be made to fit in the general plan for

power for the entire United States, in order to be of greatest value, for an isolated power system compares to a bank that has no relations with other banks and has its own circulating medium.

To make the Colorado developments fit in with such a national power system in the best way requires careful study of all the factors, and political expediencies should not be allowed to spoil this great national asset, for water power should no longer be considered along individual or state lines. The water powers of the Niagara, the St. Lawrence, the Tennessee, the Upper Missouri, the Columbia, the Colorado and the Pacific Coast streams, etc., etc., should all be considered with the idea of developing each

fairly well known, so we have better knowledge than the railway men had and consequently we should avoid many of the railway difficulties, which were due to a lack of knowledge.

It is easily seen that such a national power system as outlined in the Atlas will make much better use of the potential power sources of the Colorado and other rivers, because the systems will be so large as to make best use of the varying stream characteristics in the various sections. Such a system will also obtain advantage from the time difference between east and west. It will also take best advantage of the diversity of power demands of the different classes of power users in the various



View of Colorado River showing Glen Canyon and Lee's Ferry dam site.

resource to the largest possible extent as rapidly as conditions warrant, and have this power flow into transmission systems finally covering the United States through the means of large public service companies.

Such a general power plan has been outlined in an "Atlas of U. S. A. Electric Power Industry." The plan therein suggested was given after much study and work and without influence. The plan in brief suggests dividing the United States into twelve regional power districts, and in each district the power development and transmission would be handled largely by one concern. In each regional district there would be distributing areas served by companies close enough to the consumer to be responsive to their needs.

With such a general plan the electric power systems of the country may grow without developing "weak systems." If the railway construction of fifty years ago could have been directed by a general plan, many of the present railway problems, which are due to "weak lines," would not exist. Electric men know the power resources, and the markets are

sections of the country. The large power system will also be more favorable for financing large construction programs.

Many small water powers are not now possible of development because the cost of taking the power to a market is too high, but with a large system as proposed, the problem of transmission and marketing would practically end at the main transmission system. On the other hand, many large water powers, such as the Colorado and many others, are not now feasible because the market for very large blocks of power is not available; but with a national system (due to the fact that in the eastern part of the United States there will always have to be many large steam power plants to make up the water power deficiency) the market will be available at once.

Such a national power system will reduce the costs of power to local companies, and much reduce the cost of main line railway electrification; and will develop business along railways, thus giving an added reason for electrification. It will cause acceleration of water power developments and result in

demands for capital, labor, copper, aluminum, hydraulic and electrical machinery, steel, etc.

Such a system of electric-power transmission as outlined in the Atlas is necessary for the economic development of this country; for, aside from the economics of such a system in connecting up the surplus power sources with the large consuming markets and in bringing into use many power sources otherwise not feasible of development, such a system will bring about a distribution of the industries and population of the country not otherwise possible, resulting in adding to the general stability of the country. The construction and operation of such a system will raise the country to a higher economic level. Only by such a system can the power resources of the country be made of greatest value.

I have discussed this general plan for the electrification of the United States with a great many public utility men, engineers and economists. The approval of the plan is very general and is very gratifying to me, and I believe the Colorado River power must become part of the plan.

What are the agencies we now have to bring about development on the Colorado and other resources and result in a nation-wide power service?

1. We have a Federal Power Commission that issues licenses for water power developments involving public lands, to public service companies or other agencies that qualify under the act. The licenses granted are for 50 years and may then be recaptured by the United States. Or the plants may be recaptured by condemnation by states or municipalities at any time. We have also State Water Commissions to give licenses for state streams.

2. Public service companies may organize in states for development of power and the distribution thereof. There are many such companies now in existence, a number of which furnish interstate power.

3. Public Service Commissions in the various states generally regulate securities, service and rates. The rates must be reasonable, which in the light of experience generally means that the rates must be such as to attract the large amount of new capital required for development.

With the above three agencies in existence it seems that development on the Colorado River, or on any other stream in the United States, may proceed in the ordinary way, subject to the economic conditions which surround all sound development.

It seems to me, therefore, that a new agency for developing the Colorado is not necessary; and if one is necessary for the Colorado, why not one for the Columbia, for the Missouri, or the Tennessee? It seems to me this would only add complications to bring about what we all desire, i.e., universal power service as rapidly as this is economically feasible in the various sections of the country. I believe thoroughly that this can best be brought about in the quickest time through the privately owned public service companies, publicly controlled through the State Public Service Commissions, and the Federal

Power Commission in their respective fields of control and regulation. If the private companies fail in their responsibility, then we may discuss other plans that will bring about the desired result.

It is well known how difficult it was to get the Federal Water Power Act passed. It is now working fairly well, and it seems we may apply our attention to improving and assisting in working with the present agencies rather than disturb conditions with new ones.

Knowledge of Power Problem Needed

The conditions for flood control of the Colorado River can be brought about in several ways, and the same is true of the control of the water for irrigation. If these conditions are met, then that plan should be adopted which gives the greatest possible returns from the sale of electric power. Hence, since the power is to pay a large part of the cost, the problem should be attacked with a thorough knowledge of the facts of the power problem. And no merely local section should be allowed to prevent the ultimate use of the largest possible amount of power to fit in with a general plan for the ultimate electrification of the U. S. A.

It is not generally recognized that every dollar of annual gross earnings added to the utilities requires about \$5 in capital expenditure for generation, transmission and distribution. Necessarily this new capital can not come from earnings, but must be provided from the sale of bonds or other securities. And one of the great difficulties of ownership of a rapidly growing business like the electrical industry, by the United States or by the states or municipalities, is that to get the new capital we must go before the voters and ask for approval for bonds at an election. The private companies merely ask the approval of the directors. The delay in getting the approval of the voters may seriously hamper development.

Los Angeles a few years ago took over the distribution system of the Southern California Edison Company in the city. Now they have no money for extension of facilities. If Los Angeles can not solve the problem of distribution in the city, how can they expect to solve the much larger problem of the Colorado River power? We have a similar case in San Francisco, which city has almost completed a water storage system, a power plant and transmission system, but has no distribution facilities. The stockholders of a private company delegate the authority for the sale of securities to their directors, but the voters will not delegate similar authority to their elected representatives.

In my opinion, as a result of very extensive studies, I am firmly convinced that all such by-product power as will result from the Colorado River, from the Hetch Hetchy water supply, etc., should be leased or sold to private power companies at the power sites. Then the power available will flow with the general power system of the country and in this way these local powers have a much greater value than otherwise.

Public Ownership a Vital National Issue

By J. D. Barnhill

President, Evans & Barnhill, Advertising Specialists, San Francisco and New York

WHAT a ridiculous picture is presented by our public service corporations! With every favorable attribute on their side, moral and economic, they wait supinely for the public ownership politicians to attack them and force them to defend their position against an indictment that is based on the uninformed state of the public mind—an indictment composed of half-truths, subtle innuendoes, and twisted economics, an indictment made in the name of authority, whereas no such a position could be assumed if the case were to be tried before a thoroughly informed and interested public conscience. And with the public service corporations lies the privilege as well as the duty of informing the public mind of the truth of private enterprise in public service. The power companies, for instance, have performed a marvel of economic achievement, and are administering that achievement to the welfare of the people, and are administering it in a progressive scale of economic benefit, yet the people because uninformed are quick to believe the colorful attack and unsound arguments of the professional politician. A giant in achievement, a pigmy in defense. A sound and capable servant in fact; a legalized and predatory criminal in the eyes of a fair, sane, but **uninformed** public.

What, then, is the pending case of The People vs. The Public Utilities? Very clearly, it is The Public Ownership Drive attacking the entire electrical industry. The question of public relations with public utilities is a very vital national issue today. The problem that the electrical industry is facing on the Pacific Coast is no different from that of any other section of the country, except that the entire country is looking to this section for the solution, because it has learned that practically all of the major problems of the past ten years in the electrical business have been solved by men here on the Pacific Coast, and it expects the Coast to repeat its performance in this important issue.

In a comparatively short time the electrical industry has established a record of almost unparalleled accomplishment. But the very fact that electrical development has gone ahead at such a rapid pace and that it affects the daily lives of so many people makes it a conspicuous mark for public criticism or legislative interference. As a public servant, the public utilities are subject to frequent review and attacks in the form of public ownership programs

IF it be true that "a stern chase is a long chase" it is equally true that a defensive fight is a fight half lost from its inception. Victory for the defense means only an attack postponed, while victory for the offensive leaves the defeated party with depleted courage, damaged assets and the stigma of guilt. Furthermore, a defensive fight starts with an assumption of right on the part of the side taking the initiative and a corresponding implication of guilt on the part of the defense. When, therefore, the attack is launched by those temporarily clothed in authority the implication of guilt on the part of the defense is doubly implied, and a defensive fight made doubly dangerous.

and competing electrical developments by municipalities and other political divisions. Such criticism is due to misunderstanding and such attacks are based upon a lack of accurate information. Therein the public utilities corporations are to blame. Public utilities under government regulation have no reason to, and should not, withhold important facts from the public. That the utilities have not taken advantage of their opportunity to transmit and register correct information

is manifested by the public in individual and combined attacks upon the power companies. The very character of these attacks and the procedure followed proves that the public does not have a fundamental knowledge of the electrical industry. I was surprised not long ago to have a prominent business man ask me if I thought that the power companies actually wanted to give the public a square deal. You ought to know what the people think of you, you ought to get that knowledge and use it.

There has developed throughout the world, and there is being manifested in the United States today a spirit of unrest which is popularly expressed by the term, "Bolshevism." The attempt to control the railroads of the country was unsuccessful, because the railroads, as interstate commerce carriers affecting wide ranges of territory, could not be quickly and completely organized. Nevertheless, it is a warning, and it points to one very definite fact, that of all the public utilities in the United States today the power companies are most vulnerable because they are isolated and it is therefore possible by taking a section here and a section there to obtain by attrition, a complete and unanimous movement, which some morning will cause us to wake up and find with us public ownership of public utilities, as we found prohibition, over night.

According to my best information and belief, the agitation surrounding public ownership of public utilities is the result of political exigency. Politicians must have a political issue at each election. In searching for such issues they have discovered that the public utilities are vulnerable because they are isolated and located in separate political subdivisions. It is consistent with political tactics to use an issue such as public ownership in separate political subdivisions in turn so as to prolong its usefulness as an issue. Sound economics and good business have no consideration. Such activity is considered entirely from the standpoint of its value as a

basis for political maneuvers and issues. Professional politicians study these matters and plan as carefully as any business organization develops its operations. It is their business. Even a superficial study of the tactics of the politicians shows that their strength lies, and the opportunity of final success is provided, in attacking the issue in smaller political subdivisions such as cities and counties.

A recent practical illustration of this method of attack is shown in California. The state-wide so-called Water and Power Bill was defeated on an average of about three to one in this state last year. Since then the city of Oakland has voted on an issue favorable to public ownership and Sacramento has voted a public ownership project by a majority of five to one. This experience would indicate two things: First, that public utility organizations become aroused by a state-wide issue, put forth an organized effort and make it their business to fight the issue with satisfactory results. Second, that politicians playing upon local conditions and with a thorough organization pitted against the lack of such organization on the part of utilities, are successful in their efforts.

Failure to Meet Crises

It appears evident that history may repeat itself in the matter of public ownership. Public utility officials do not appear to be aroused to the seriousness of the present situation. These officials have devoted their time and resources to sound and progressive development of the properties for which they are responsible. It has not been a part of their job to anticipate a political crisis. When this crisis arises, the power companies by and large are not prepared or organized to meet it. It makes no difference that they have established wonderful records of performance and have met every obligation of public necessity. Such facts are not effective against political plans because politicians are not concerned with such facts. They are concerned only with the opportunity to swing votes around an issue for personal gain. The politicians have already obtained a good start and even now, it may be too late to stem the tide. On the other hand, it seems clear that the power companies must immediately and aggressively protect their business life and property or plan definitely to redeem the properties and go into some other business. I do not infer that the power companies are not anxious to protect their business but I do submit that they have not proceeded against this political problem in the same orderly manner in which they have approached their business and engineering problems.

There are two methods of handling things of this nature. These were clearly demonstrated in recent activities brought about by a vote in each of two very large political subdivisions on the subject of public ownership. In one section the power companies, the jobbers, and the retailers openly withdrew their organization from their regular work, insofar as they could, and keep their business going, and under direct instruction, publicly acknowledged, spent their time fighting it. In another

section a different method was used. The power companies and jobbers and the other people connected with the industry, got behind a stalking horse. The answer was that in the open fight territory the vote was five to one against the measure and in the other territory it was barely two to one against it. Does that have any practical significance? Is it not right and proper that any man should openly defend his business, life and property? The time has come when the electrical people shall declare themselves to the public. The public is always fair when it knows; and it does not know today. It does not know that under the clean and skillful business management of the privately owned companies the rates for electrical service show an absolutely declining curve, and that under the plans and direction of that same management that curve will continue, and that this is the only practical and logical way in which that can be assured to the public.

In discussing this situation with some of the leading officials of power companies throughout the United States I have had some of the biggest men say this: "Gentlemen, we are and shall continue to be in favor of lower rates." That is good business. Any business conducted along business lines is interested in an increase of volume and an increase in return on invested capital which will enable it to serve its customers at a lower cost, at a competent rate of return on the investment and effort. That is absolutely sound.

Problem Is Social One

The problem of the power companies today is no longer an economic problem—it is a social problem, and the economists of the world realize that the way to solve an economic problem is through its social aspect, because no economic problem is universal in its effects unless it materially affects the sociological life of our people. To illustrate, fifty per cent of the connected service points of the power companies today are to dwellings where women use the service. Women have at least fifty per cent of the say in the point of view and in the attitude toward the power companies with the men. By the very nature of their work women get more benefit from utility service than anyone else and if the women understood the utility point of view in rendering that service, they would be strong friends and supporters. I doubt whether the advertising departments of many power companies have ever taken women seriously into consideration. I doubt whether they have made anything like a fifty-fifty break in the definition of their service in terms that women can understand as against the advertising they are directing toward the men and the industrial elements of the electrical business.

Up to this time the power companies have had to meet and solve the tremendous problems of generating and transmitting energy in a highly efficient and economical manner, and they have done this well. They are now face to face with the next and final step in their responsibility and that is to make the people conscious of the fact that delivery has been

made in the most economical, in the most efficient, and in the most satisfactory manner possible.

We have a sixth sense which I choose to call "impression," and impression governs the commercial life and to a large degree the social life of our nation. No matter how efficient and practical you may be in your actual operations, unless the people get the proper impression you have failed to capitalize on your greatest asset—favorable impression. It is unfortunate that the highly cultivated brains of the industry have been so busy with the practical problems that they have not had an opportunity to give thought to this sociological feature. As soon as they do the answer will immediately begin to unfold. Criticism arises from misunderstanding, and this misunderstanding in turn has its origin in wrong impressions which have been permitted to grow in the public mind. The industry has a great story to tell. It has a field of almost unlimited usefulness and its development of that field has been startlingly rapid. But its accomplishments have been dimmed and its usefulness curtailed by the lack of clarity with which its operations have been reported. Such terms as kilowatts, horsepower and other technical definitions are meaningless symbols to the people as a whole. These must be translated into terms of what electricity is doing and can do for the benefit and comfort of the individual. Since advertising is one of the most effective and inexpensive methods of molding impressions, it is necessary that the impressions which it forms have their basis in fact. When the electrical industry tells its story to the public there must be no possibility of misunderstanding on the latter's part. The situation imposes the double necessity of carefully analyzing the conditions existing in the territory and determining the trend of public sentiment in relation to the industry. Having developed the facts they must be reduced to a definite and workable program and correctly interpreted to the public.

The Value of Advertising

Within the next five years, according to an analysis supported by government figures and a cross-section of the opinions of all the leading economists of the United States, there will be constructed 1,640,000 buildings, one-half of which will be residences. This imposes upon the electrical industry a responsibility which it has never had to face before, and because of this tremendous activity the public will be forced, by reason of the pressure of surrounding thought, to consider more seriously what the power companies are doing with their responsibility. While this building program provides an unusual opportunity for increased revenue, it also makes the situation of the electrical industry more critical. If there has been opposition to individual development of electric power during the past—opposition based on lack of knowledge of true conditions—this opposition will be spurred into more formidable activity by this expansion in the building trades. Not only will the opposition grow through its lack of knowledge, but it will be played upon by the active sponsors of state and municipal ownership of this and similar utilities.

Here then, is presented a grave danger to the electrical industry, a danger that can be converted into a positive and friendly force by the simple process of popular education through frank, positive and constructive advertising. The electrical industry must carry its case to the people, and carry it right now. Advertising has pleaded similar causes before the court of popular opinion—pleaded them well and won the decision. The public utilities are spending a sufficient amount of money in their advertising efforts today to win their case in the court of public opinion. I am very definitely of the opinion, however, that they are not even on the target. They are putting a merchandising story into commercial language. The greatest effect of their advertising is among themselves. The electrical industry has spent the greater part of its time for a number of years talking to itself both in personal activities and in advertising.

No merchant would be satisfied to ask a word of mouth discussion of his property to stand as the definition of his value in the community. That is not done any more in modern business. Men have learned to use the power of the printed word to create sound thought, and no individual in a community can resist the pressure of surrounding thought, except he be a political shyster with an ax to grind, or that he has an opportunity to take advantage of the opening left and play upon the ignorance or the wrong impressions or the lack of understanding of the public. Tell them things which may be accepted as facts without refutation, and get your story over.

As I understand it, when an emergency arises such as a constitutional amendment or a local vote on public ownership, the public relations department of the power company is expected to get into immediate action. In the general course of business, the public relations department is trained to function in matters of its business relations with the public. Without men specifically trained to study political procedure, it is more or less unfair to expect the public relations officers and organization to perform with full effect.

Your political opponents would ask nothing better than to be permitted to attack public ownership section by section under cover. The thing they would fear most would be to bring the fight out in the open and have it over with. A bill pending before a state legislature on a constitutional amendment or some other political subterfuge arouses exactly the kind of political turmoil out of which the politicians expect to profit. A widespread, clean-cut dissemination of real facts is poisonous to the politician. Advertising in page space which clearly and decisively states the real facts cannot be successfully met by the usual political procedure.

The American people are fair when they know the facts. The people are neutral today—they are open to conviction. However, unless something definite, something simple and direct, is done I firmly believe that within five years we shall have public ownership of utilities. And I issue that as a solemn warning.



The third-floor stock room of the Capital Electric Company. Small devices are kept in the bins below the shelves.

Setting a Standard for Electric Warehousing

WAREHOUSING is an essential part of the service of the western jobber. His stocks must be such that they can be drawn upon from time to time by the dealer, his function in many respects being similar to that of the forebay reservoir of the power system, insuring the continuous flow of merchandise along its normal channels. With many concerns the warehouse is a backyard affair to which very little attention is given except that it be fireproof and not too congested to permit of fairly prompt deliveries. The electrical jobber, however, has learned that the warehouse has a more important function than this implies.

The model warehouse is a well designed building with storage space and facilities so planned that the goods are arranged in some logical and orderly manner. Material from broken boxes is neatly piled on shelves, preventing damage and affording saving by keeping the goods in first-class condition. By doing away with the confusion resulting from a random arrangement and by grouping together those items naturally associated, considerable time in shipping is saved, to the satisfaction of the customer, as well as to the reduction of overhead. The favorable impression made upon visitors and out-of-town customers is no small item in listing the advantages of an up-to-date storage department. When these visitors are contractor-dealers, the model layout serves not only as an indication of the progressive spirit of the jobbing house, but also as a pattern of how it may be done which can be taken to heart by the dealer and applied to his own problems.

The Capital Electric Company, located in its four-story, fireproof building at 410 West Second South St., Salt Lake City, is a splendid example of the modernly equipped electrical jobber. Its new building is modern to the last and least detail, inside and out. It was planned and built with the needs of the concern specifically in mind, arranged to house efficiently the two branches of the business, electrical products and automotive supplies.

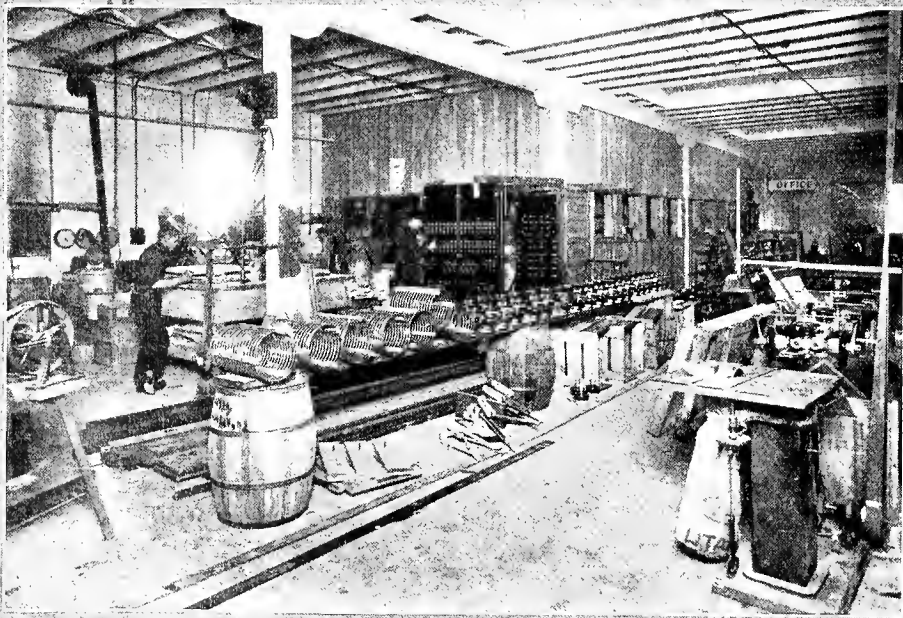
Modern Stock Keeping Arrangement Used

The four spacious floors and large full length basement afford ample room for display and stocking. The two lines of stocks are completely segregated. The basement, ground floor, second floor and part of the fourth floor are devoted to generous stocks of electrical supplies. The third floor, with practically 10,000 sq. ft. of floor space, is devoted entirely to automotive supplies and garage and storage battery equipment.

Stocks are arranged throughout so that related materials are to be found on the same floor and so far as possible on adjacent shelves. This is a small item, but when hundreds of orders must be filled, there is considerable saving of time in not having to take a number of steps to obtain two types of materials which repeatedly occur in the same shipment. This is facilitated by the fact that material is catalogued with the same idea in mind and by following catalog numbers, an arrangement approximating this desirable result may be attained. The name of the material and the listing are plainly marked on neat



THE office of the Capital Electric Company in Salt Lake City, is situated in a large well lighted room. In the center may be seen the city sales department which is located on the main floor of the four-story building. The switchboard manufacturing department of the company is shown in the lower illustration. Repairs to motors are made in this department.



labels so that the contents of the shelves can be easily identified, even by a novice.

In order to expedite the filling of orders, the entire stock is card indexed, by name, number and location on the shelves. A complete file is kept in the main office and on each floor an index of all material stored on that floor. When an order comes in, it is transferred to the appropriate company forms and is then routed from floor to floor according to the location of material, starting, of course, at the upper level. As the items are obtained they are checked off the order, the completed slip being sent in to the shipping department with the last installment.

A complete system of chutes from floor to floor connecting with the shipping department below makes possible the ready transference of material. Another entirely separate arrangement of inter-floor stairway communication is provided, completely shut off from the storage rooms, so that access to all parts of the building may be had without passing through the warehouse quarters. No one is allowed on these floors except the attendant in charge or properly accompanied visitors. This makes it possible to insist upon neatness and uniform storage methods throughout, with some one person responsible.

Covered Bins Used for Small Articles

No open material is allowed in the aisle. Packages or individual accessories are immediately removed from broken boxes and stored on the shelves



Salt Lake City home of the Capital Electric Company.

opposite. Small material which cannot be stacked is placed in covered bins, provided below the boxes. The shelving is uniform so that it could readily be knocked down and the lumber used again if so desired. The bins are an idea which has been developed by this company. They are of uniform size, but may be subdivided to meet the needs of particular equipment. The cover aids in keeping the material in good condition and prevents losses through metal parts becoming tarnished and shopworn. A neat label fastened to the cover gives information as to the contents. Perhaps more than any other one

item in the arrangement, these bins have attracted the attention of visitors and have been copied by others for application to their particular needs.

Package material is neatly stacked on the shelves, as carefully as though the stock were continuously before the eyes of the public. Packing, containers, and odd pieces of paper are cleaned up and removed—not allowed to litter up the storage space. All this is a very simple matter to take care of provided it is not allowed to accumulate, but any deviation from this rule would soon result in a confusion which would nullify all the good results of the system.

Not only are these floors kept in condition by systematic orderliness and by periodic cleaning, but every so often, walls and ceiling are repainted and refreshed. Some attention is being given at the present time to the use of a wall paint which will not be permanently affected by the smoke and fumes which are the natural result of the mining activities in the vicinity of Salt Lake and which can be washed at intervals.

A model wiring system has been installed, which not only provides adequate light for the prompt and accurate locating of material, but serves as a sample of what illumination should be provided in other buildings. When a question of this sort comes up, the contractor can say "Have you seen the Capital Electric installation?" and secure permission to take his prospect through.

Provisions for Sales and Executive Departments

On the main floor of the building is the city order department, where short orders can be filled over the counter with the least delay to the customer. Two full-sized windows offer the opportunity for the attractive display of goods which not only interests the passing public, but serves as an advertisement and may suggest ideas to the visiting dealer of some effect which he can obtain in his store.

All office departments are located on the top floor. This has several advantages. Generous window light, as well as skylights provide sufficient daylight, so that artificial light is entirely unnecessary during daylight hours. This arrangement further obviates the necessity of retracing steps in the filling of an order, the business following the natural channel, starting on the top floor in the office and passing down through the stock rooms to the shipping department on the ground floor.

The company also operates a fully equipped electrical factory, where switchboards and panel boards are made and motor repairs are handled. This is an enlargement of the jobber's service which fills a real need in a district so distant from the factories where the goods handled originate—and is one of the busiest of the company's departments.

The building has the reputation of being the most up-to-date of its kind west of the Mississippi River—and under the successful management and direction of J. A. Kahn, president of the company, has illustrated the practical value of modern ideas in actual service.

The National Electrical Code

By Claude W. Mitchell

Electrical Engineer, Board of Underwriters of the Pacific, San Francisco, California

IT hardly seems necessary at this time to relate the early history in connection with the National Electrical Code, but for a certain reason I wish to refer to it briefly. Apparently it is the belief of a great many that electrical inspection departments, particularly those designated as "Underwriters," spend a large portion of their time in making or framing rules, and that such rules are conceived within the confines of the inner office and handed out without regard to their necessity or thought as to what may be the effect of their enforcement. In the minds of many there seems to be a vague, intangible picture of a mysterious being known as "The Underwriters," possessing the power and authority summarily to make or break the rules of the National Electrical Code, and when a new edition of the Code is issued the Underwriters merely make what changes they desire without consultation with any of those affected. It is to correct this erroneous impression that it seems advisable to state a few facts regarding earlier editions of the Code as well as that soon to be issued.

In 1881 and 1882 the New York Board of Fire Underwriters and the Boston Manufacturers' Mutual Fire Insurance Company issued rules pertaining entirely to arc-light installations. Various sets of rules differing considerably from one another were issued by insurance-rating organizations until the early part of 1892. At that time representatives of underwriting boards from New England, the Middle, South Atlantic and Gulf States met and prepared rules. Out of this meeting grew the Electrical Committee of the Underwriters' National Electrical Association.

In 1897 there was held the first national conference of delegates from the American Institute of Architects, American Institute of Electrical Engineers, American Society of Mechanical Engineers, American Street Railway Association, Factory Mutual Fire Insurance Companies, National Electric Light Association, National Association of Fire Engineers, National Board of Fire Underwriters and Underwriters' National Electric Association. As a result of this conference the first edition of the National Electrical Code was issued. From that time up to and including 1909 the Code was issued biennially under the direction of the Electrical Committee of the Underwriters' National Association, but representatives of other organizations were present at the meetings and took part in the discussions.

The 1911 edition of the Code was prepared by

THIS is the first of a series of articles by Mr. Mitchell, explaining the code and its provisions. Inasmuch as there have been numerous changes in the provisions and arrangement of the Code, great care has been taken to explain fully and to clarify its various sections.

a committee of the National Fire Protection Association, it having been decided to turn this work over to the Association because it has for its active members national associations other than underwriting organizations and prepares other standards pertaining to fire protection and fire prevention. While most of the

members of the old Electrical Committee are now members of the Electrical Committee of the National Fire Protection Association, the membership of the latter has been enlarged so that it now includes representatives of the American Institute of Electrical Engineers, American Electric Railway Association, National Electric Light Association, Association of Electragists, International, Electrical Supply Jobbers' Association, Electric Power Club, Association of Edison Illuminating Companies, Associated Manufacturers of Electrical Supplies, United States Bureau of Standards, Underwriters' Laboratories and the Electrical Inspection Departments of the cities of New York and Chicago.

It is evident, therefore, that the Underwriters were responsible for the earlier rules established for the regulation of installing of electrical apparatus and wiring, but since 1897 other organizations and associations have cooperated in the effort to have the Code represent in so far as is possible the consensus of opinion as expressed by all branches of the electrical industry and allied interests. It is the desire of the Electrical Committee of the National Fire Protection Association to have given to proposed additions to or changes in Code regulations all publicity possible and constructive criticism is not only invited but urgently requested. There has been no attempt to "put over" any of the rules. As proof of this, may be cited the method of procedure in presentation and adoption of changes which will be incorporated in the edition of the Code soon to be issued.

The Electrical Committee has about thirty members and from its membership are formed several Standing Committees, each having assigned to it all matters pertaining to some subject or group of subjects covered in the Code. Each Standing Committee has one or more Technical Sub-Committees, the number depending upon the number and nature of the subjects to consider. The membership of each Technical Committee is composed of members of the Standing Committee of which it is a sub-committee and of representatives of the electrical industry directly concerned with the subject it has for consideration.

Some of these committees were at work on proposed changes in the Code for more than a year before the time for completing their reports. One committee held public hearings in New York and Chicago in an effort to obtain expressions of opinion from as many as possible.

In November, 1922, the Electrical Committee met to consider reports of the Standing Committees. Three days were spent in this work and the adopted recommendations were then published in pamphlet form and issued as a bulletin to the public about the first of this year. This bulletin contained an announcement of a public hearing to be held in New York on the twelfth of last March, when persons having criticisms of the proposed changes as contained in the bulletin would be given an opportunity to present their objections.

The public hearing was held as scheduled, there being present between 300 and 400 persons, and one entire day was spent in discussion. The Electrical Committee then spent three days in considering the proposed changes and the recommendations made at the public hearing, and the changes adopted at this meeting are the ones which will appear in the forthcoming edition of the Code.

The general form and arrangement of the last edition of the Code (1920) is the same practically as that of the first edition. From time to time new subjects have been added and additions made to existing sections but apparently without any great attempt at co-ordination. In a sense the Code might be termed an accumulation of rules. Because of this fact it is rather difficult for one not thoroughly familiar with its contents to locate all rules pertaining to whatever point may be in question. This has been realized for some time but the Electrical Committee took no definite action until the 1923 edition was under consideration. As a result of this action a special committee was appointed to recodify the entire Code. This committee has rearranged and rewritten the material of the 1920 edition together with all revisions and additions adopted for the 1923 edition. The contents will be grouped under headings as follows:

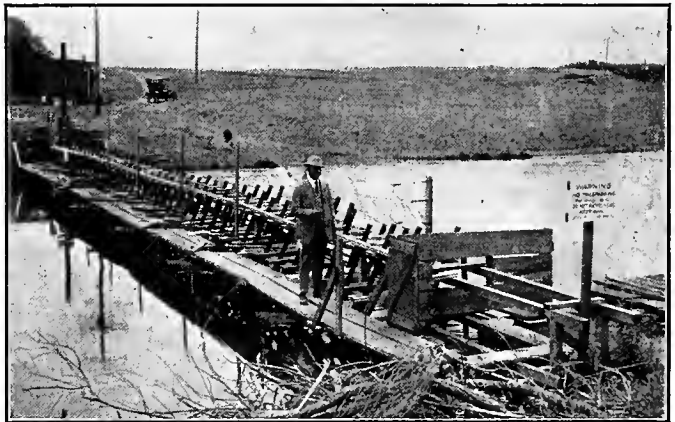
- Definitions
- General
- Outside Work (Pole Lines)
- Services
- Wiring Methods (Open Wiring, Knob and Tube, Conduit, etc.)
- Conductors
- Outlet Boxes and Cabinets
- Automatic Protection of Circuits and Appliances
- Grounding
- Rotating Machinery and Its Control Apparatus
- Transformers
- Switches
- Switchboards and Panelboards
- Fixtures (Lamp Sockets and Receptacles, Plug Receptacles and Other Outlet Devices)
- Lamps
- Heating Appliances
- Resistance Devices
- Batteries
- Lightning Arresters
- Cranes and Hoists
- Elevators
- Extra Hazardous Locations
- Garages
- Motion Picture Studios

- Motion Picture Projectors and Equipment
- Organs
- Radio Equipment
- Signs and Outline Lighting
- Theaters
- Small Isolated Plants
- Systems and Voltages of Over 600 Volts
- Signal Systems

A few diagrams will be supplied as they will be especially useful as supplementing the text. Succeeding articles will deal in detail with the provisions of the new code and will contain full explanation of its arrangements and provisions.

Electrical Fish Stop Saves Game Fish From Irrigating Canals

A novel illustration of one of the many interesting uses to which electricity has been put is obtainable at the Burkey electrical fish-stop, operated by the California Fish and Game Commission at Wah-toke Lake, near Navelencia, in the territory served by the San Joaquin Light & Power Corporation.



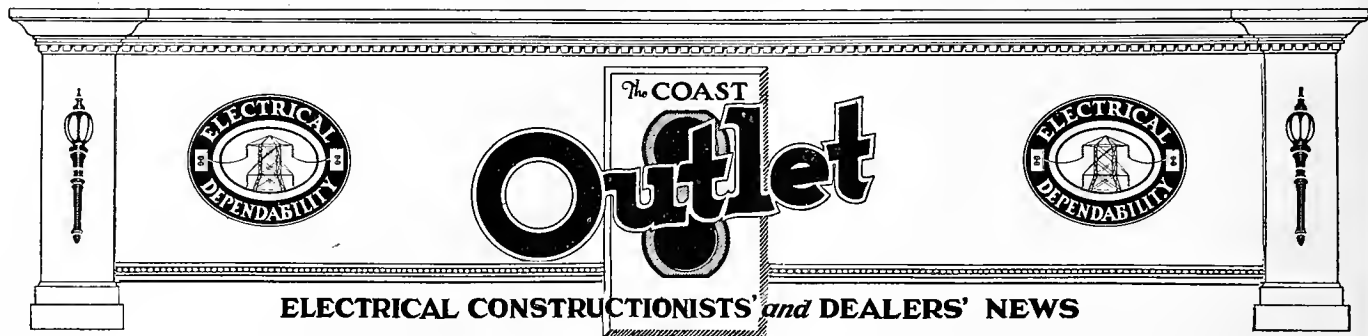
Trout, bass and other game fish of the Kings River are prevented by this electrical fish stop from entering the irrigating canals and being cast up on the fields.

This apparatus consists of a double row of iron bars, inserted into the bed of the 90-ft. irrigation canal, at distances of 24 in. apart, and charged with 110-volt, electric current which passes through the water.

The object of the fish-stop is to prevent the trout, bass and other game fish which are native to the Kings River, out of which the canal flows, from drifting down the ditch to be washed out on the land, where they die after the headgates of the canal are closed and the water recedes. It is said that the game fish come down the stream tail first. The current of electricity causes the fish to remain upstream, out of the charged area. The non-game fish come through the barrier head first, and are stunned by the electricity.

The barrier requires 2.4 kw. to operate and consumes practically 400 kw-hr. of energy per month. It is operated at a cost of approximately \$12 per month.

This installation will prevent the needless killing of thousands of game fish in this canal, and will greatly lessen the number of non-game fish which infest the Kings River at this point.



Electrical Construction

By E. Earl Browne

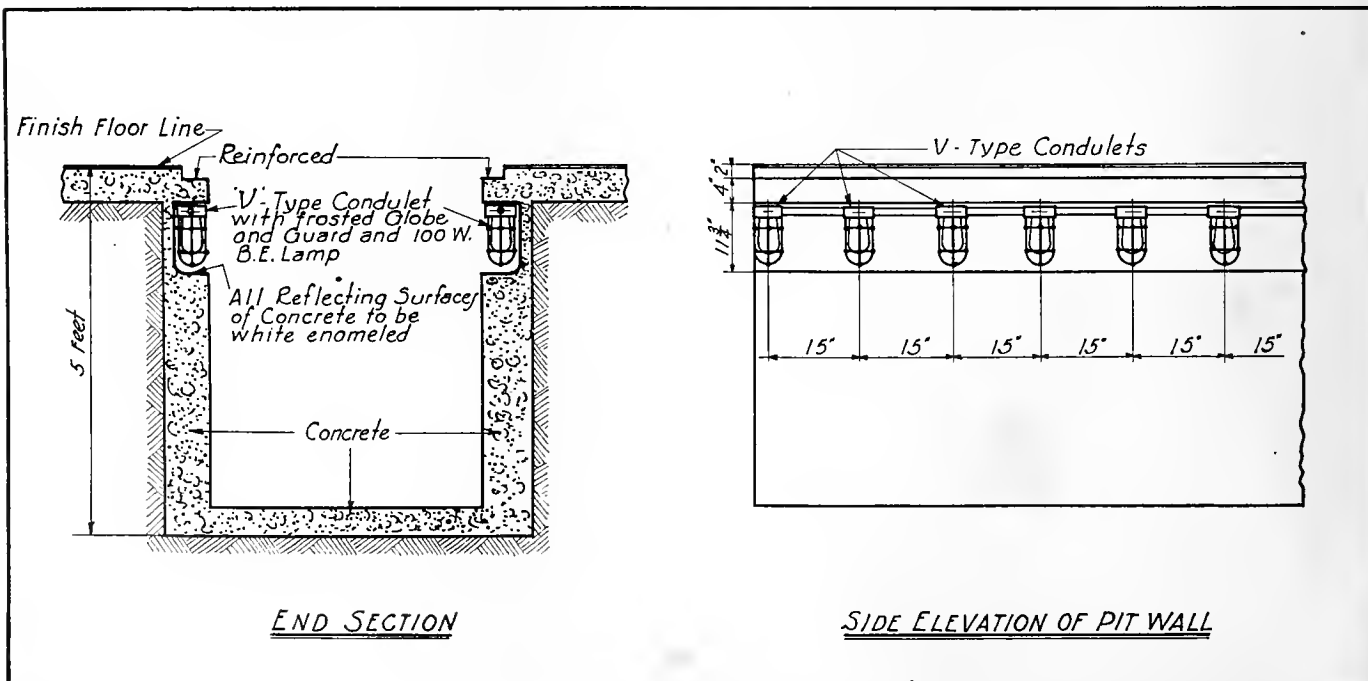
GARAGES are divided into two classes, public and private. The 1920 National Electrical Code defines a "garage" under Rule No. 42 as "a building or portion of a building in which one or more self-propelled vehicles carrying volatile inflammable liquid for fuel or power are kept for use, sale, storage, rental, repair, exhibition or demonstration purposes, and all that portion of a building that is on or below the floor or floors on which such vehicles are kept which is not separated therefrom by tight, unpierced fire walls and fire-resisting doors."

Section "a" of the above rule requires the use of metal conduit or armored cable in garages of sufficient floor area to permit the storage of three or more vehicles. Metal raceways (metal molding) can be used in offices and showrooms only. In the ordinary private garage which is used for but one or two vehicles, knob and bushing construction is permitted. All outlets and junction boxes must be located at least 4 ft. above the floor, which means that all convenience outlets must be installed at this minimum height instead of center of baseboard height as in the usual building. This point is important in estimating the circuit conduit and wire on a garage job as this extra rise and drop will amount to 7 ft. or more per outlet. Throughout this rule 4 ft. as a minimum

distance from the floor is required for all apparatus where the circuit is designed to be opened or at which sparking may occur, such, for example, as portable connectors, panel boards, switchboards and charging panels, elevator hatch limit switches, motors and generators.

When apparatus is fully enclosed by cases or vapor-proof enclosures they may be less than 4 ft. off the floor. Commutators must be provided with wire screen guards of not less than No. 14 mesh even if 4 ft. or more above the floor unless they are fully enclosed. All portables must be equipped with keyless molded composition or metal sheathed porcelain sockets and handle, guard and hook, and the cord must be of a type such as "P," "CA," "PA," "PWP," "PKWP," "PAWP" or "T," all of which are designed for rough usage. The following type cannot be used for such service: "C," "CB," "CC," "PD," "PO" or "PS." If flexible cord is used for ceiling lights it must be of the reinforced type.

In garages as well as all other occupancies the question of adequate light is being given more than passing concern, particularly in the cleaning and service departments. Anyone who has worked on a machine under daylight conditions and then attempts the same job under insufficient artificial illumination,



Figs. 1 and 2

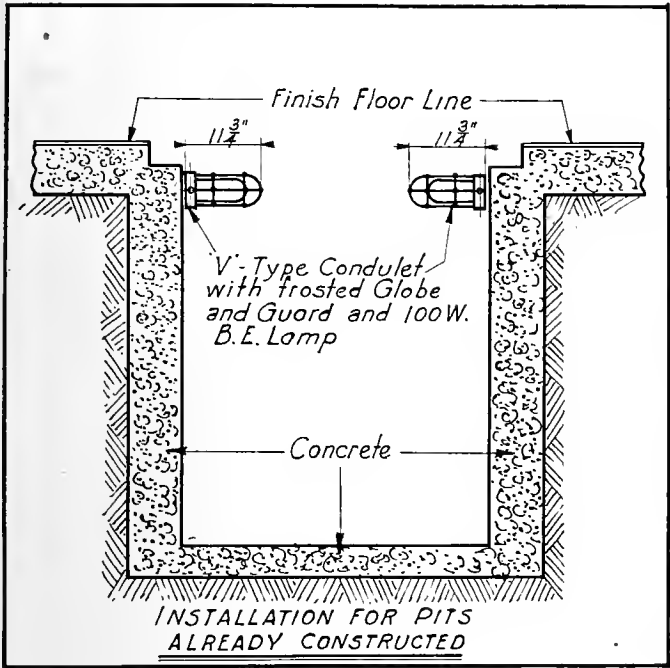


Fig. 3

will agree that a labor saving of 50 per cent is entirely too conservative. The pit seems to be the accepted means of working conveniently under the car, and as that is the portion where the finest work must be done on jobs not requiring the entire removal of the engine, transmission or differential from the car, yet it is the darkest in the ordinary garage. It is quite a problem to properly illuminate this under section and still keep the glare from the eyes of the mechanic. Figs. 1 and 2 show one scheme which can be used with good results and with proper portables with guards and reflectors to supplement this general illumination, a job free from obstructions is accomplished.

A more efficient installation could be accomplished if the general illumination were installed on the pit walls, as per Fig. 3, with reflectors throwing the light rays upward, but this scheme tends to ob-

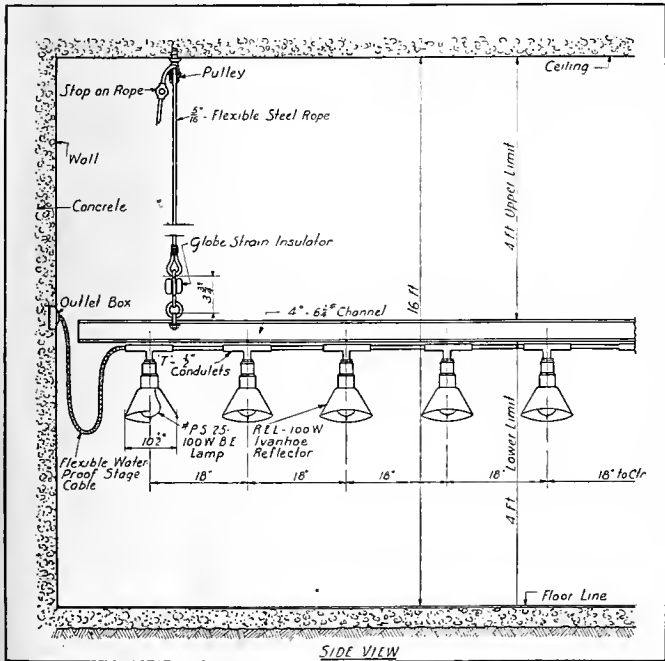


Fig. 4

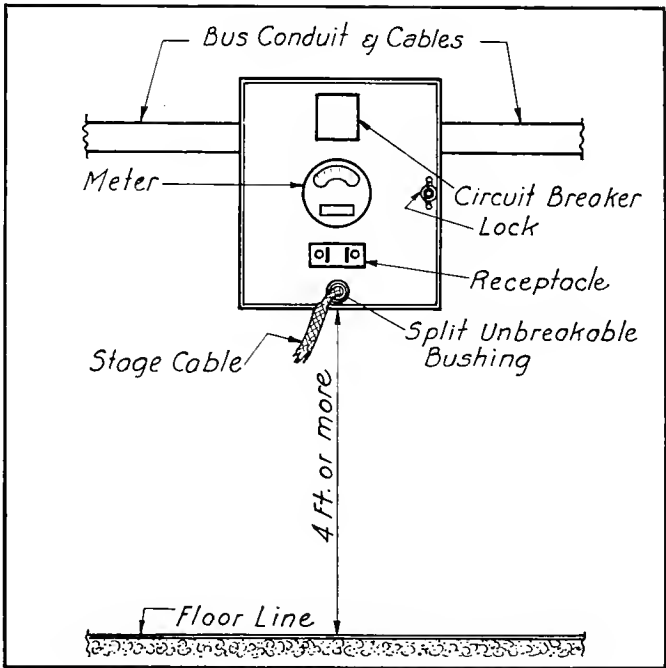


Fig. 6

struct the working space excessively and also greater breakage of lamps and globes from falling tools, etc., will make the upkeep more expensive.

Proper reflector equipment at the wash rack is important and a suggestion for an adjustable installation is given in Figs. 4 and 5.

As the electric truck is coming into its own for delivery purposes, the garage of the future will be equipped for recharging of the batteries and if the expense of operation is to be handled intelligently a system of metering in combination with a reverse current circuit breaker is necessary even in a private garage with current being used for two or more such vehicles or for one vehicle and other uses. In the public garage such a system is absolutely necessary and in order to provide for this service a bus system of conduits, cables, plug boxes, etc., would be installed in a manner similar to Fig. 6.

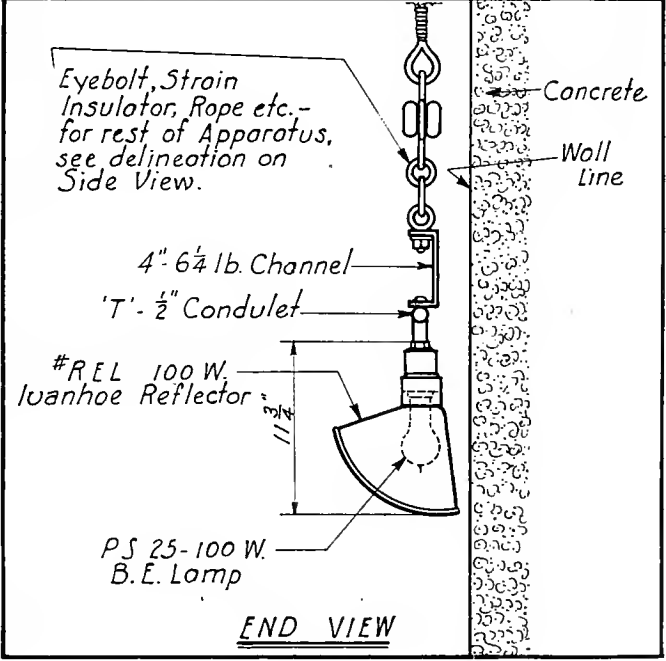


Fig. 5

Would Your Clerks Sell Appliances This Way?

One of the Editors of the Journal of Electricity Attempts to Purchase an Electric Ironer

EDITOR'S NOTE

The above is an actual experience of an editor of the Journal of Electricity. It is planned from time to time to relate other experiences of a similar nature.

Having decided to increase the use of electricity in his well electrified home by the addition of an electric ironing machine, one of the editors of the Journal of Electricity recently investigated the various machines on display by the dealers in San Francisco. After trying several of the electric stores only to be told, "We don't carry them," he finally went to the department stores. There, quite logically, he found ironers sold in the household goods department. In this department were also found very complete stocks of lamp socket devices, including irons, toasters, grills, heating pads, curling irons, immersion heaters and the well-known air heater.

Among other places visited was one of the leading department stores which prides itself on having clerks who are well informed, courteous and accommodating. The courtesy was there, beyond question, but just take the time to give serious thought to the following conversation:

One clerk, calling to another: "Mr. —, these people want to see an electric ironer."

Second clerk: "We have the — and the —, but you don't want the —" (naming the first-mentioned machine).

Customer: "How about this machine," indicating the second named.

Clerk: "It's a good machine, has ball bearing casters, foot-control and is gas heated."

Customer: "What does it cost to run this machine?"

Clerk: "About three and a half cents an hour, I guess."

Pause—

Clerk: "It can be cleaned easy because this lever here throws the shoe way back so it can be cleaned or waxed."

Pause—

Clerk: "This machine costs \$165 and I just sold one yesterday to a party in Berkeley. It's \$172.50 on terms—we only charge five per cent."

Pause—

Clerk: "It has a thermostat control so the shoe won't get too hot."

Customer: "The price includes the thermostat?"

Clerk: "Yes, it's built into the machine now and controls the gas."

Customer: "Is this machine furnished with electric heating device?"

Clerk: "Yes, but it's pretty expensive."

Customer: "How much will it cost to operate this machine if electrically heated?"

Clerk: "Oh, about eight or nine dollars a month."

Customer: "On how many hours a month of use is that figure based?"

Clerk: "Well, I can't tell you how much it will cost to run your machine—

that would be foolish. But I'm telling you on about three hours' use a week."

Customer: "What is the rate for using this machine electrically equipped?"

Clerk: "Well, the power companies have a rate that is so much for so much and then drops down to so much for so much, then all over that I guess is three and a half cents."

Customer: "When this machine is electrically heated, what is the size of the heating equipment?"

Clerk: "Six hundred and sixty watts, the same as a range. It's \$265 with electric heater. That makes it pretty expensive. It has a — motor so the electric equipment is the best you can get."

O Death! where is thy sting? O Grave! where is thy victory?

In a few short minutes of conversation was undone all the constructive work of the manufacturer of the ironer, all the tremendous effort of the central station to deliver to the consumer the message of low rates for domestic power service and all the merchandising structure of the department responsible for the sale of the ironer.

Some day the merchandise manager of that store is going to wonder why he is not selling electric appliances. We only hope he reads this personal experience and asks us to tell him why!

Unusual Window Display Proves Big Business Getter

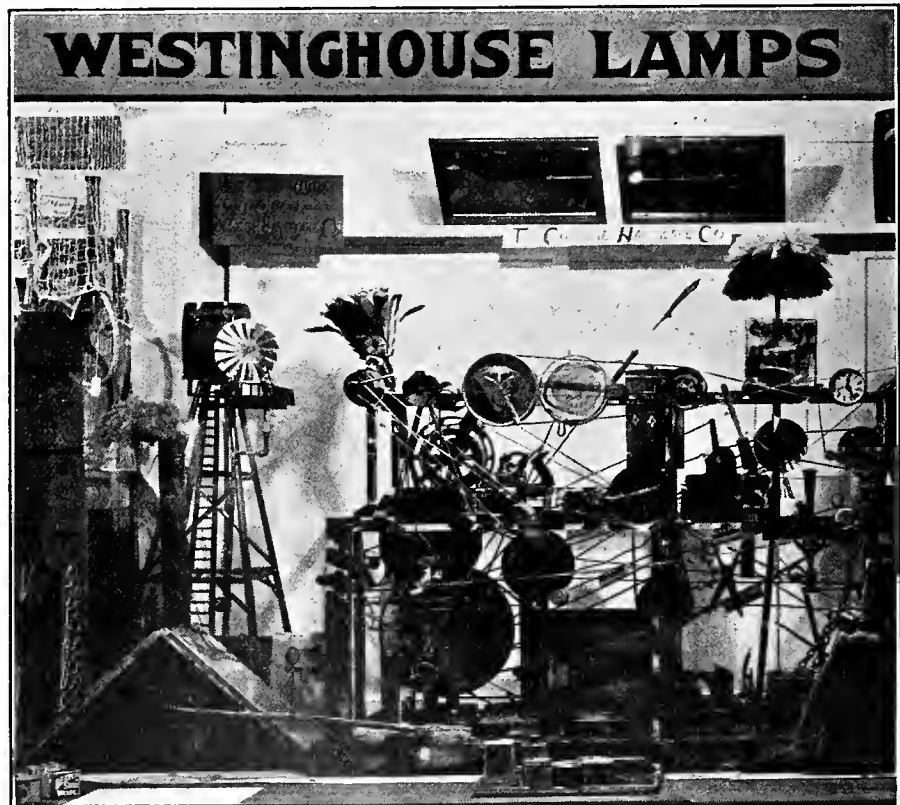
Dealers everywhere are giving more thought to the importance of their windows. It is now fully realized that not only is the window space the most

costly on the entire premises but it is also well known that attractively dressed windows are vital agents, first, for attracting the attention of passers-by and second, for drawing people into the store. Once inside the store it is up to the sales force to capitalize on the desire created by the window display. That window displays do create a desire to buy is so well proved by the experience of the department stores and dealers in all lines as to require no argument.

A splendid example of careful thought and planning in window display effort is shown in the photograph reproduced herewith. This display, which was supposed to represent King Tut's automobile, was in the window of the College Hardware Company, Berkeley, and was so effective that it was allowed to remain much longer than the usual trim. The entire set was made of hardware and household goods carried in stock in the store and all was in motion, the motive power being supplied by a small motor concealed from view. The effect was so unusual that it drew large crowds at all hours, day and night, and was productive of greatly increased sales.

A notable feature of this display is that it was made possible by the use of an electric motor. Dealers in electrical merchandise are particularly fortunate in that such material lends itself to exceptionally attractive window displays. Progressive dealers are capitalizing on this fact with successful results and increased profits.

E. B. McKinley, formerly of Paso Robles, Calif., has purchased the San Jose Electric Shop at San Jose. He took over the business on Sept. 1 and will proceed to develop the business according to several individual plans and ideas.

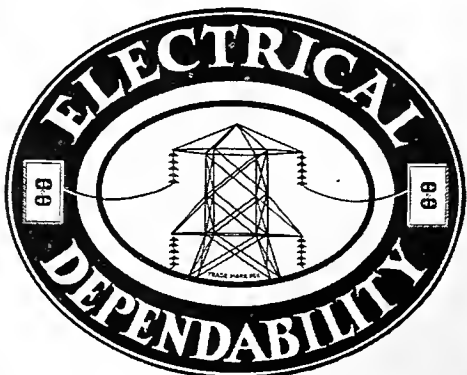


Attractive window display made possible by electricity. The unusual sight presented by these articles in motion attracted attention which resulted in markedly increased sales.

ELECTRICAL CONSTRUCTION

VICTOR LEMOGE

281-285 NATOMA ST.



OPERATING UNDER THE

"CHECK" SEAL

GOOD WORKMANSHIP,
STANDARD MATERIALS,
FAIR PRICES.

The consolidation of these two symbols standing for quality gives the purchaser an added guarantee of quality and safety and gives to the contractor-dealer an increased prestige.

Cooperative Sign Assures Electrical Dependability

Close Association of Two Symbols Standing for Quality Gives Promise of Best Workmanship and Materials

Campaigns for cooperative effort have long been planned and, to a degree, executed within the electrical industry. All such plans have resulted to the benefit and advantage of those concerned and have prompted further and more extensive cooperation. A leading electrical jobber of the Pacific Coast some time ago initiated a movement for the improvement of installation conditions and awarded to those contractor-dealers who agreed to cooperate in the movement for the betterment of conditions a conspicuous and distinctive mark or seal. This seal was placed only on merchandise which had been thoroughly tried and proved, and permission was given only to those who would agree to maintain the high installation standard set by the jobber.

The California State Association of Electrical Contractors and Dealers at the same time has been striving for better installation and working conditions and has made notable progress. Their seal of "Electrical Dependability" has become a watchword of quality work and is recognized as the symbol of reliability. Victor Le Moge, the president of the state association, has conceived the idea of combining the two symbols standing for the best in the industry and of presenting to the public a double assurance of protection in electrical installation work. This is certainly a splendid development of cooperative effort and is evidence of what can be accomplished within the industry by a unity of thought and action among the members of the trade.

Dealer Uses Novel Prize Contest to Stimulate Sales

Live dealers everywhere are constantly finding ways and means for bringing new customers into their stores and for increasing the customer interest in their business. Plans too numerous to mention here have been successfully worked out and the results have been written on the cash register. Such merchants never complain about poor business—they never have cause to complain because they never allow business to become poor. The merchant who is continually originating and initiating sales plans has no place in his mind for complaint. His mind is filled instead with constructive thoughts. A conspicuous example of what can

be done by the use of sales attraction features is the plan of the Electric Appliance & Service Company, 5101 York Blvd., Los Angeles. This firm recently offered a prize to the customer presenting the best letter setting forth the benefits received from the use of an electric appliance bought at their store. As not infrequently happens the prize went to a woman—Mrs. W. W. Smith—who wrote of the pleasure and service she had received from a washing machine she had purchased a short time previous. She says, among other things:

"I don't know what I would do without my washer. I used to dread wash days but now I take joy in running my machine at this time."

This letter is significant of several

things. First, that electricity is performing a real sociological and economic service; second, that too much attention cannot be paid to the women of the country in formulating sales plans for electric appliances; third, that dealers who really want to do so always have at hand means for stimulating sales and for increasing the trend of traffic to their stores.

L. D. de Vis-Norton, of the Hawaiian Volcano Research Association, recently addressed the Engineers' Club at the club rooms, 57 Post St., San Francisco, on the topic "Observations of an Erupter at Kilauea." The suggestions was made during the meeting that the internal fires of the volcano could be utilized for the generation of energy.

J. C. Hobrecht, of Sacramento, Calif., was in attendance at the executive committee meeting of the California State Association of Electrical Contractors and Dealers. Mr. Hobrecht is never too busy to lend his time to constructive effort for the upbuilding of the entire industry and his notable vision is perhaps best expressed in his store which is an example to every dealer.

Harry H. Walker, one of the leading electrical contractors of Los Angeles and president of the Los Angeles Electrical Contractor-Dealers' Association, was a recent visitor to San Francisco. In addition to caring for personal business Mr. Walker also attended the executive committee meeting of the California Electrical Cooperative Campaign. Mr. Walker reports a very healthy business condition in the south and states that cooperative effort is rapidly expanding in that territory with the usual improvement in business conditions.

JOBBER, DEALER AND SALES AGENT



Modern Apartment Is to Have Electric Equipment San Francisco's Largest Residence Building Will Be Extensive User of Electric Appliances and Apparatus

Electricity has long been recognized as the greatest labor-saving medium that can be introduced into the household. It shortens the necessary hours of toil and lightens the actual work; it improves living conditions, removes the drudgery of housework and permits the housewife to feel that she is a real member of society and not a servant. The extent of the growth of the idea

of household electrification is much greater than is generally realized and this growth has been prompted by the demand from women for labor-saving devices. Women were among the first to recognize the value of electrical appliances and they have made possible the enormous sales volume which has been reached in those lines and which are continuing, not only without reduc-

tion but in ever increasing amount. The electric home is the logical outcome of this demand.

Apartment house builders are providers of homes. Instead of housing one family they provide for several, sometimes for hundreds of families, and for that reason they must provide all the comforts that would be found in all the various individual homes of the people under their care. For this reason, and also because every apartment house is in competition with all other apartment houses in similar location, owners and builders are constantly striving to include in their equipment all electrical devices possible. Favorable rates for energy now offered by power companies together with the sales activity of those companies and of the dealers have resulted in some very notable and satisfactory appliance installations. Particularly is this true of electric range installations.

One of the most conspicuous apartment house installations on the Pacific Coast is that of the Huntington Apartments, San Francisco. The placing of electrical equipment in this building typifies the splendid cooperation so often shown in the industry and the sale is the result of the combined efforts of R. C. W. Libbey, of the Simplex Electric Heating Company; J. W. Wrenn, of the Great Western Power Company, and H. S. Tittle, electrical contractor-dealer.

The building, plans for which were prepared by Weeks & Day, San Francisco architects, is fireproof throughout and one of the most beautiful apartment houses yet erected in this section. It will be twelve stories high on California Street and fifteen stories on Pine Street with garage in the basement. Electricity plays a very important part in the operation of the entire building as the elevators will be electrically operated; each kitchen will be wired for an electric refrigerator; an electric suction fan on the roof will provide kitchen ventilation; motors will be installed for operation of vacuum cleaners, circulating hot water system and fire pump; three convenience outlets will be wired into each room; lighting fixtures will be specially designed for the purpose of diffusing all light from the center of the room and every kitchen will be equipped with a Simplex electric range. The cost of the building complete will be approximately \$1,600,000 and it will be ready for occupancy within a few months.

The value of such an installation as this to the contractor-dealer hardly needs mention; suffice it to say that every progressive contractor will make it his business to further the interests of the industry by promoting the idea of domestic applications of electricity.



Architect's drawing of the Huntington Apartments which will be one of the most completely electrified apartments in San Francisco. One hundred and seven electric ranges will be installed.

ELECTRIC RANGE DIRECTORY

Published and Copyrighted by the Journal of Electricity, September 15, 1923.

A list of Electric Range Manufacturers giving catalog information on the equipment of each, with list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way mention the Journal of Electricity.

NAME OF MANUFACTURER	TRADE NAME	Model or Catalog No.	Type of Unit (O—Open C—Enclosed)	Floor Area	Height from Floor	Oven Dimensions	HEATING UNITS										WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point at Which Repair Parts May be Secured							
							DIMENSIONS				WATTS															
							SURFACE		OVEN		SURFACE			OVEN												
							Large	Medium	Small	Total Wats	Surface Units	Broiler	Maxium	TO L												
Edison Elec. Appliance Co., Chicago, Ill.	"Hotpoint Hughes"	RS-67	O	28½x52½	57	18x18x14	8½	6½	6½	6½	2-12x12	12x12	12x12	12x12	1500	1000	1000	4500	2-1500	Broiler	Maxium	AC	\$235.50	Edison Elec. Appl. Co., San Francisco, Los Angeles, Seattle, Portland and Ontario, Cal.	All sales offices	Universal Service Stations San Francisco Los Angeles Seattle
		R-67	O	28½x52½	70	18x18x14	8½	"	"	"	4-12x12	12x12	12x12	12x12	"	"	"	6500	4-1500	"	Maxium	"	223.50			
		R-79	O	28½x52½	64	18x18x14	8½	"	"	"	"	"	"	"	"	"	"	6500	1500	"	"	"	325.00			
		R-63	O	28½x28½	41	18x18x14	8½	"	"	"	"	"	"	"	"	"	"	3500	1500	"	"	"	247.00			
		R-85	O	28½x28½	33	18x18x14	8½	"	"	"	"	"	"	"	"	"	"	3500	"	"	"	"	174.00			
		R-87	O	28½x28½	33	18x18x14	8½	"	"	"	"	"	"	"	"	"	"	1000	4500	"	"	"	161.50			
		R-87	O	25 x44	41	16x12x18	6½	"	"	"	"	9x12	9x12	9x12	1000	"	"	3000	1200	"	"	"	175.00			
		R-101	O	21½x24	33	16x12x15	6½	"	"	"	"	"	"	"	"	"	"	2000	1100	"	"	"	99.00			
		R-105	O	21½x24	33	16x12x15	6½	"	"	"	"	"	"	"	"	"	"	2000	1100	"	"	"	76.75			
		R-109	O	21½x37½	33	16x12x15	6½	"	"	"	"	"	"	"	"	"	"	3000	"	"	"	"	84.25			
Electrahot Appliances, Incl., 201 Fifth Ave., South Minneapolis, Minn.	"Electrahot"	D-57	...	25 x43½	...	15x15x19	1000	1000	...	4000	1500	7000	...	C	\$135.00	R. M. Burton, Alaska Bldg., Seattle	Seattle and San Francisco	Electric Appliance Co., San Francisco The Elec. Corporation, Los Angeles, Seattle and Portland Fobes Supply Co., Seattle, Portland, Hardware Jobbers	
Estate Stove Co., The Hamilton, Ohio	"Estate"	84	C	56 x28	58	18x18x12	8	1500	1100	1000	650	3300	1500	9650	...	E	...	The Estate Stove Co., Furniture Exchange, San Francisco		Factory
		88	C	56 x25	50	18x18x12	8	...	...	...	...	...	...	1500	1100	1000	650	3300	1500	9650	...	E	...	
		81	C	56 x25	55	18x18x12	8	...	...	...	...	...	...	1500	1100	1000	650	3300	1500	9650	...	E	...	
		79	C	54 x28	53	18x18x12	8	...	...	...	...	...	...	1500	1100	1000	650	3300	1500	9650	...	L	...	
		H-83	C	30 x16	54	18x18x12	8	...	...	...	...	...	...	1500	1100	1000	650	3300	1500	9650	...	L	...	
		80	C	33 x26	55	18x18x12	8	...	...	...	...	...	...	1500	1100	1000	650	3300	1500	9650	...	L	...	
		82	C	23½x18	49	18x18x12	8	...	...	...	...	...	...	1500	1100	1000	650	3300	1500	9650	...	L	...	
		78	C	28½x18	43	12x11x17	8	...	...	...	...	...	...	1500	1100	1000	650	3300	1500	9650	...	E	...	
Landers, Frary & Clark, New Britain, Conn.	"Universal"	E-91	C	27 x43½	52	14x14x19	8½	1500	1000	...	4500	2000	1500	8000	...	E	\$200.00	Landers, Frary & Clark, 335 New Call Bldg., San Francisco		Dealers and Central Stations
	E-92	C	"	58	"	"	...	...	...	...	...	...	...	"	"	"	4160	"	"	7600	...	"	215.00	
	E-95	C	"	40	"	"	...	...	...	...	...	...	...	"	"	"	3500	"	"	7000	...	"	199.00	
	E-96	C	"	51	"	"	...	...	...	...	...	...	...	"	"	"	3500	"	"	7000	...	"	165.00	
	E-93	C	"	40	"	"	...	...	...	...	...	...	...	"	"	"	3500	"	"	7000	...	"	150.00	
	E-94	C	"	51	"	"	...	...	...	...	...	...	...	"	"	"	3500	"	"	7000	...	"	180.00	
	E-90	C	27 x29	61	"	"	...	...	...	...	...	...	...	"	"	"	4160	"	"	7600	...	"	150.00	
	E-98	C	27 x23½	38	"	"	...	...	...	...	...	...	...	"	"	"	"	"	"	6600	...	"	150.00	
	E-99	C	"	"	"	"	...	...	...	...	...	...	...	"	"	"	2500	"	"	6000	...	"	140.00	
Magee Furnace Co., Boston, Mass.	"Electric- Coal" "Electric Alliance"	...	C	43½x20¼	33	16x12x13	9	7	...	...	...	...	...	1500	1000	...	3500	1500	6500	...	E	\$530.00	The T. G. Arrowsmith Co., 135 New Montgomery St., San Francisco	San Francisco
Majestic Electric Appliance Co., 560 Folsom St., San Francisco, Cal.	"Majestic"	1000	O	21½x47	48	18x18x14	8½	1500	1000	...	4500	1300	1700	7500	...	E	\$180.00	Majestic Elec. Appl. Co., Kansas City, Mo.	All Central Stations and Jobbers	
		1001	C	"	"	"	"	"	"	"	2500	"	"	5500	...	"	440.00		
Geo. D. Roper Corp., Rockford, Ill.	"Roper"	2001	C	43 x26	32	16x16x13	8½	1500	1000	...	4800	1650	1100	7500	...	"	\$100.00	C. B. Babcock Co., San Francisco P. B. Taylor, Marsh Strong Bldg., Los Angeles	San Francisco	
		2002	C	38 x26	30	16x16x13	8½	...	...	...	...	...	...	1500	1000	...	2800	"	"	5500	...	"	180.00	
		2003	C	31 x26	33	"	"	"	"	"	4800	"	"	7000	...	"	200.00		
		2022	C	43 x26	29	"	"	"	"	"	4800	"	"	7000	...	"	180.00		
		2005	C	17½x17½	22	1600	1000	...	3600	3600	...	"	207.00		
		2009	C	28 x17	22	"	"	"	2600	2600	...	"	227.00		
		2012	C	40 x17	"	"	"	"	1600	1600	...	"	140.00		
Rutember Elec. Co., Inc., Marion, Ind.	"Morion"	D-90	O	22 x36	...	12x12x12	8	1400	600	1320	A	\$ 75.00	Atlantic-Pacific Sales Co., 640 Mission St., San Francisco	San Francisco	Through Leading Jobbers	
		126	C	18 x24	34	18x14x14	8	...	...	...	...	...	...	1400	...	...	3260	2380	...	...	L	98.50		
		135	C	22 x50	55	18x14x16	8	...	...	...	...	...	...	"	"	"	3800	2500	...	...	E	160.00		
		130	C	27 x51	62	"	"	...	...	...	...	...	...	"	"	"	"	"	...	...	"	170.00		
		145	C	27 x52	73	"	"	...	...	...	...	...	...	"	"	"	5000	"	...	...	"	180.00		
Simplex Elec. Heating Co., 85 Sidney St., Cambridge 39, Mass.	"Simplex"	150	C	27 x53	67	18x14x14	8	...	...	...	...	...	...	"	"	"	7600	2380	...	...	"	207.00		
		147	C	20 x26	38	18x14x14	8	...	...	...	...	...	...	"	"	"	8800	2380	...	...	"	227.00		
		110	C	24 x26	38	18x14x14	8	...	...	...	...	...	...	"	"	"	5000	2500	...	...	"	140.00		
		105	C	24 x26	38	18x14x14	8	...	...	...	...	...	...	"	"	"	5000	2500	...	...	"	155.00		
		25	C	34 x15	26	13x13x13	8	...	...	...	...	...	...	"	"	"	3600	1200	...	...	"	\$150.00	R. C. W. Libbey, Main Office, Box 703, San Francisco	San Francisco
Universal Elec. Co., Hobbrook, Merrill & Stetson, San Francisco		26	C	34 x15	26	13x13x13	8	...	...	...	...	...	...	"	"	"	3600	1200	...	...	"	75.00		Universal Elec. Co., Hobbrook, Merrill & Stetson, San Francisco Reiman White, Elec. Co., Los Angeles Marshall Wells Co., Portland
		27	C	51 x22	54	18x17x11	"	...	...	...	...	...	...	"	"	"	4800	1900	...	...	"	175.00		
		29	C	57 x22	"	"	"	...	...	...	...	...	...	"	"	"	4800	1900	...	...	"	220.00		

NAME OF MANUFACTURER	TRADE NAME	Model or Catalog No.	Type of Unit O—Open C—Enclosed	Floor Area	Height from Floor	HEATING UNITS										Retail Price	WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point at Which Repair Parts May be Secured						
						DIMENSIONS				WATTAGE															
						SURFACE		OVEN		SURFACE		OVEN		SURFACE						OVEN					
						Large	Medium	Small	Stimmer	Oven	Broiler	Large	Medium	Small	Total Watts	Oven	Broiler	Maximum Wattage	Temperature Control	Thermostat	Cabinet	Low			
Standard Electric Stove Co., Toledo, Ohio	"Standard"	D-619	C	24 x 28	61	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		619	O	24 x 27	38	18x14x12	9				9x12	9x12	1200	440	2400	1200	1200	4800	L	Thermostat	C	Low			
		621	O	24 x 26	35	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		501	O	24 x 26	35	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		755	O	26 x 27	35	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		639	O	24 x 40	53	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		555	O	24 x 38	61	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		455	O	24 x 34	53	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		423-4	O	24 x 33	61	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		521	O	22 x 30	49	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		519	O	20 x 29	61	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		421	O	18 x 26	49	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		851	O	27 x 40	61	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		850	O	27 x 46	53	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		365	O	22 x 33	22	11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		A-4	O	None		11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
		A-5	O	None		11x14x19					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low			
951	O	24 x 22	52	14x16x18					9x12	9x12	1200	440	880	1100	1100	3080	A	Thermostat	C	Low					
H. G. Weeks Mfg. Co., The Hamilton, Ohio	"Weeks"	52	O	23 x 16	35	16x18x9	7				9x12	9x12	1200	440	880	1100	1100	3080	L	Thermostat	C	Low			
		44	O	24 x 17	38	18x14x12	9				9x12	9x12	1200	440	2400	1200	1200	4800	L	Thermostat	C	Low			
		46	O	24 x 17	38	18x14x12	9				9x12	9x12	1200	440	2400	1200	1200	4800	L	Thermostat	C	Low			
		236	O	26 x 20	33	16x14x11	7				9x12	9x12	1200	440	3000	1500	1500	6000	E	Thermostat	C	Low			
		C-114	O	44 x 24	33	16x18x12	7				9x12	9x12	1200	440	3000	1500	1500	6000	E	Thermostat	C	Low			
		105	O	39 x 24	38	18x18x12	7				9x12	9x12	1200	440	3000	1500	1500	6000	E	Thermostat	C	Low			
		C-354	O	47 x 22	33	18x18x15	7				9x12	9x12	1200	440	3000	1500	1500	6000	E	Thermostat	C	Low			
		454	O	47 x 22	33	18x18x15	7				9x12	9x12	1200	440	3000	1500	1500	6000	E	Thermostat	C	Low			
		18-70	O	26 x 19	32	18x17x13	10	8			7 x 12	7 x 12	2000	1500	1000	5000	2000	2000	7000	E	Thermostat	C	Low		
		18-70	O	26 x 19	32	18x17x13	10	8			7 x 12	7 x 12	2000	1500	1000	5000	2000	2000	7000	E	Thermostat	C	Low		
		18-60	O	26 x 19	32	18x17x13	10	8			7 x 12	7 x 12	2000	1500	1000	5000	2000	2000	7000	E	Thermostat	C	Low		
		18-60	O	26 x 19	32	18x17x13	10	8			7 x 12	7 x 12	2000	1500	1000	5000	2000	2000	7000	E	Thermostat	C	Low		
		18-50	O	26 x 19	32	18x17x13	10	8			7 x 12	7 x 12	2000	1500	1000	5000	2000	2000	7000	E	Thermostat	C	Low		
		18-50	O	26 x 19	32	18x17x13	10	8			7 x 12	7 x 12	2000	1500	1000	5000	2000	2000	7000	E	Thermostat	C	Low		
		18-50	O	26 x 19	32	18x17x13	10	8			7 x 12	7 x 12	2000	1500	1000	5000	2000	2000	7000	E	Thermostat	C	Low		
Walker & Pratt Mfg. Co., Boston, Mass.	"Crawford"	B-3-10	O	43 x 25	50	18x13x16	10	8			14 x 8	14 x 8	2000	1000	4000	1500	1500	8000	A-C	Thermostat	C	Low			
		B-2-10	O	32 x 24	34	12x16x12	10	8			14 x 8	14 x 8	2000	1000	4000	1500	1500	8000	A-C	Thermostat	C	Low			
		515	O	24 x 16	31	12x16x12	10	8			14 x 8	14 x 8	2000	1000	4000	1500	1500	8000	A-C	Thermostat	C	Low			
Westinghouse Elec. & Mfg. Co., San Francisco, Cal.	"Westinghouse"	B-3-10 B-2-10 515	O O O	43 x 25 32 x 24 24 x 16	50 34 31	18x13x16 12x16x12 12x16x12	10 10 10	8 8 8			14 x 8 14 x 8 14 x 8	2000 2000 2000	1000 1000 1000	4000 4000 4000	1500 1500 1500	1500 1500 1500	8000 7000 5000	A-C A A	Thermostat Thermostat Thermostat	C C C	Low Low Low	Westinghouse Elec. & Mfg. Co., San Francisco, Cal.	Westinghouse Elec. & Mfg. Co., San Francisco, Seattle and Portland Illinois Elec. Co., Los Angeles.	Distributors	Distributors

NOTE--In compiling this series of Directories, the Journal of Electricity has made an effort to secure the desired information from all manufacturers of the types of equipment listed that is sold in the West. The Publisher will be glad to receive omissions, changes and additions for publication in the big FALL BUYING NUMBER of October 15, 1923.

Seattle Electric Club Presents Message to City

Dealers Cooperate in Sponsoring Electric Home and Appliance Show which Attracted Thousands of Visitors

By C. A. OSIER

The Electric Club of Seattle, which has a total membership of 160 men representing all branches of the electrical industry in Seattle, last year opened for public inspection two electric homes, each equipped with a full line of electrical devices and appliances. It was a new departure in that section of the country in demonstrating the value of electrical improvements. Non-commercial in every sense of the word, the homes gave the public an opportunity to see how electricity could make a home perfect in comfort, convenience and beauty.

Justifying the expenditure of money and time of the individual members of the Electric Club, the people of Seattle and adjacent cities and towns flocked to see the homes. So keen was the interest manifested that special traffic officers were required to direct the throngs in the vicinity of the home, and many could not gain admittance. It was unanimously conceded at the conclusion of the show that the novelty of seeing the appliances in their proper setting proved of far more educational value than a showroom display. The homes taught the public that viewed them that electricity can work magic in living conditions.

From Aug. 25 to Sept. 8 inclusive, this year, the Electric Club of Seattle again gave the general public an opportunity to visit a model electric home, on this occasion but one home being utilized. However, to further enhance the benefits accruing from the electric home demonstration, a large exhibition tent was maintained adjoining the home in which domestic appliances and equipment were displayed and demonstrated. Visitors to the home were invited to first view the exposition tent, there to view the appliances, then enter the electric home to see them installed and operated under ideal conditions.

This year's electric home and exposition was a dealer show. It was conducted by them and for them, for the obvious purpose of advertising the electrical industry, introducing and demonstrating all tried and proven domestic appliances, and for the further purpose of selling the idea of convenience outlets.

On the first three days of the exhibition and exposition, the daily average attendance totaled 2,200. From then on, continuing up to the last day of the public opening, the attendance reached the 3,000 mark daily, this number on two or more days being exceeded by 1,000 or more. Unofficial figures placed the total number of visitors at 45,000.

The electric home was designed and built by Gardner J. Gwinn, Inc., and was furnished by the Standard Furniture Company of Seattle, the firms who built and equipped the home last year. The home, one of the most attractive in the northern portion of the city, is located on a newly opened arterial highway leading from Seattle to Everett and towns in the western Washington territory.

On Sunday, Aug. 19, a week prior to the opening of the home and show, a

traffic check was made on the highway fronting the electric home, and it was found that 12,600 cars passed the house between the hours of 6 a.m. and 10 p.m. This check gave the Electric Club members definite assurance that the home would be visited by a goodly number of people.

During the 14-day exposition period, traffic officers slowed down cars both going toward and leaving the home, making it impossible for people to get by without seeing the home and exposition tent. In addition, the tent and home were floodlighted and the highway for two miles extending into the city was lighted with amber lights. Street intersections were plainly marked with signs directing the way to the electric home.

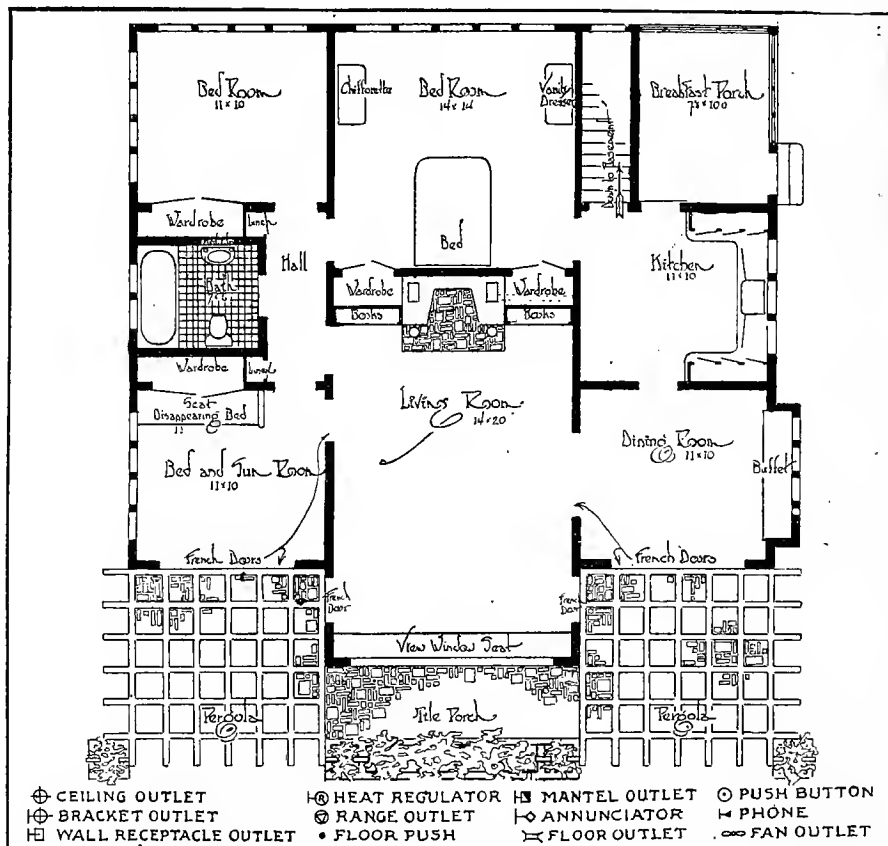
The home, which incorporated the latest innovations in house building, is of the Spanish or Southern type, with enough American ideas to distinguish it from the earlier dwellings from which the motif was obtained. The walls are of tinted stucco, with red tile roof, the cornice of which breaks through the side walls in pleasing effect. The floor plan is ideally worked out, covering seven well-lighted and ventilated rooms all on one floor. Hardwood floors, delicately tinted walls and ivory woodwork provide a pleasing background for the exquisite lighting fixtures, which were selected from the latest designs. The wiring installation in the electric home was made by the Arrow Electric Company of Seattle.

The exposition of electrical appliances adjacent to the model home was one of the most novel shows ever held in Seattle. Housed in a tent 50 x 100 ft. in size, were thirty exhibition booths ranged around the walls and down the center. These booths were sold to Seattle electrical dealers for \$47.50 apiece, the fees received covering only the cost of renting the tent, erecting and maintaining it, constructing booths, and miscellaneous expenses. Water, light and current for operating the appliances were furnished free, and all signs were furnished by the Electric Club.

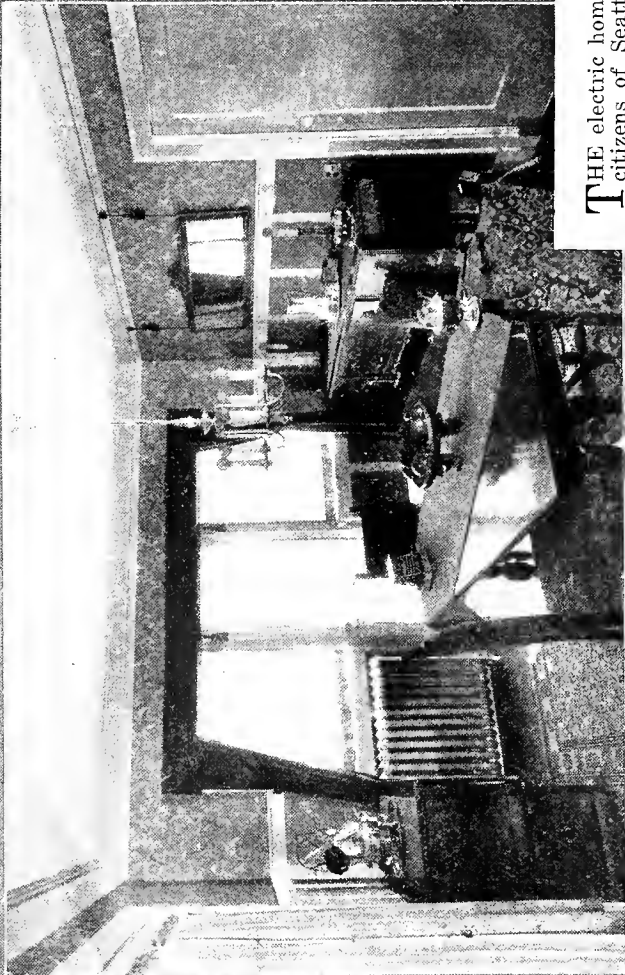
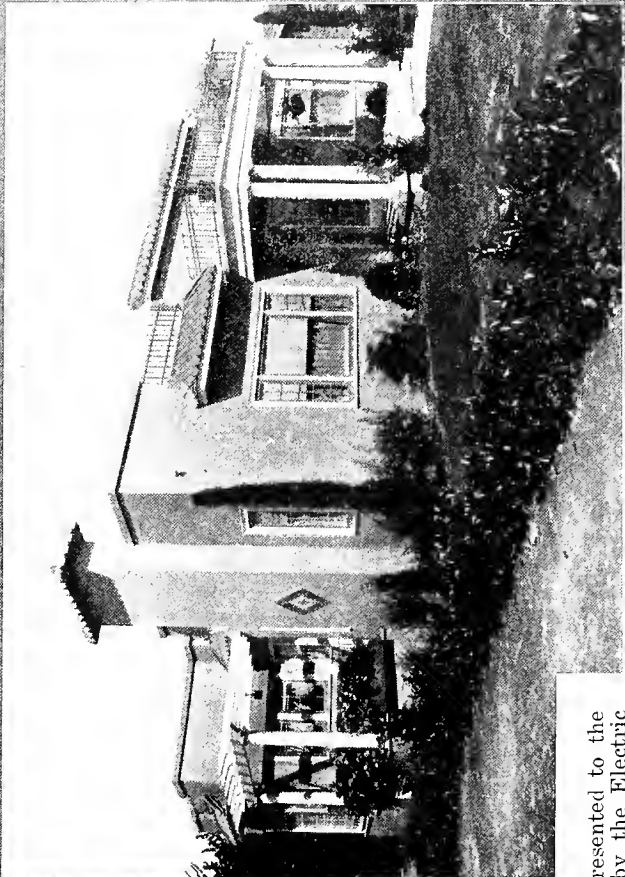
Indicating how reasonably a show or exposition of this magnitude can be produced, electrical men point out that in this case the home was built and furnished without cost to the club, Gardner J. Gwinn, Inc., and the Standard Furniture Company taking their pay in whatever advertising would result. The current for light and power in the tent show was furnished free by the Puget Sound Power & Light Company, while the municipal light plant of Seattle supplied the same service for the electric home.

All work in connection with the show was done by the volunteer members of the Electric Club and no dearth of efficient, willing workers existed. The only expense of the show was in advertising it, printing, insurance and watchmen's services. Money to cover these items was raised by an assessment among member firms and members of the Electric Club, and no difficulty whatever was experienced in raising a sum adequate to cover all costs.

All domestic appliances demonstrated in the electric home were furnished by Seattle manufacturers and jobbers, who drew lots for the privilege of sup-



Women who competed in the contest held by the Seattle Post-Intelligencer were asked to show on this floor plan where they would install outlets and appliances to make the home a modern one.



THE electric home presented to the citizens of Seattle by the Electric Club of that city was completely equipped with electrical appliances and labor saving devices. The exterior and three of the rooms are shown.



The seven men shown above were largely responsible for the success of the electric home and appliance show conducted by the Electric Club of Seattle. Reading from left to right the men are: (top row) W. E. Jones, president of the club; W. M. Meacham, chairman of the executive committee of the display; S. R. Hepler, wiring committee; (bottom row) L. R. Grant, chairman publicity committee; J. R. Wells, chairman appliance committee; H. J. Martin, finance committee; and J. J. Agutter, show committee.

plying the respective articles. The appliances in the tent show were the property of the dealers who conducted the booths.

No soliciting was permitted or attempted either in the tent show or in the home, as all efforts were directed toward giving a practical demonstration and explanation of the various appliances that were exhibited. The public's attention in the exposition tent was directed to the various appliances showing their operation. In the home, attendants stationed in the various rooms directed attention to the convenience outlets, the lighting fixtures and the arrangement of appliances.

One of the special features presented during the exhibition was the baking of waffles, cakes and the roasting of meats by electricity before the eyes of the visitors. Walter E. Jones, president of the Electric Club, assisted by a group of electrical men, baked the waffles on Westinghouse and Universal waffle irons. The City Light Department of Seattle and the Puget Sound Power & Light Company were in charge of the electric ranges being demonstrated. Visitors were given every opportunity to see the ranges in operation and to ask questions of the demonstrators.

To increase the interest in the home and appliance show, two of the Seattle daily papers conducted contests for the best ideas on the proper electrification of a modern home. The contests were open to all women of the Pacific Northwest and a large number of women sent in answers to the problems presented.

The rules of the contest conducted by the Seattle Times, provided that a contestant should write not over 250 words on the subject of how to eliminate household drudgery by means of electrical appliances. In the announcement of the contest it was stated that women could obtain excellent ideas for using electrical appliances by visiting

the electric home and appliance show and also by going to any electrical dealer's establishment. It was also suggested that newspaper and magazine advertisements offered sources from which ideas could be obtained. First prize in this contest was a Western Electric washing machine and smaller electrical appliances were given to the fourteen other prize winners. All of the appliances were secured from local electrical dealers.

A floor plan of a modern home was reproduced in the Seattle Post-Intelligencer and the women of the Northwest who entered the contest were told to indicate on the plan where they would install the various outlets and appliances if they were designing a modern home. Symbols for the various outlets were illustrated and the contestants were supposed to use these in laying out the electrical equipment of the house. The builder, a man from the electrical industry in Seattle, and a woman determined the winners in the contest and awarded the first prize, an automatic Westinghouse electric range, to the winner. Ten other prizes ranging from an electric vacuum cleaner to an electric curling iron were given to the ten next best plans. Thousands of housewives of Seattle and the neighboring towns took advantage of the opportunity to win one of the electric appliances offered in the two contests and reports indicate that the idea was productive of much good.

To give the feminine touch to the electric home, a hostess committee was appointed by W. M. Meacham, chairman of the executive committee of the display. This hostess committee was headed by Mrs. Victor Zednick. A group of women whose husbands are interested in the electrical industry assisted Mrs. Zednick in welcoming the visitors to the electric home.

Eight committees were appointed by W. E. Jones, president of the Electric Club of Seattle, to handle the electric

home and appliance show and it was largely due to the efforts of these men that the affair was made such a success. The personnel of the committees was as follows:

Executive committee—W. M. Meacham, chairman; J. R. Wells, V. E. McCain, S. R. Russell, R. G. Reiniger, Harry Byrne, J. D. Ross, L. R. Grant, C. H. Birkel. Wiring Committee—C. H. Birkel, chairman; S. R. Hepler, W. E. Jones. House Committee—Harry Byrne, chairman; W. E. Jones, Fred Lushington. Appliance Committee—J. R. Wells, chairman; V. E. McCain, R. G. Reiniger. Finance Committee—J. J. Hayes, chairman; H. J. Martin, C. D. Russell. Lighting Committee—H. E. Gleason, chairman; H. D. Wyatt, Walter Funfsinn. Publicity Committee—L. R. Grant, chairman; Anna M. Brueggerhoff. Show Committee—J. J. Agutter, chairman; A. E. Williams, John Hector, Fred Lushington, H. E. Boring, Thomas Phelps, Frank Cooley.

Appliance Load Is Increased By Percolator Sales Campaign

E. B. Hall, commercial manager of the Western Light & Power Company, Denver, Colo., has recently instituted at all offices of that company a special percolator sales campaign. F. S. Henderson, local manager of the company at Boulder, during the month of August sold nearly 300 pot type percolators on the special plan as mapped out, which provided for installment payments and an allowance of one dollar on each old percolator or coffee pot turned in.

For the special campaign an aluminum percolator was chosen, selling for \$7.50 list, and a down payment of fifty cents was required on all sales while the balance was payable with the light bill at the rate of fifty cents a month. This extended the full payment period over an entire year and the popularity of the plan is best attested by the results obtained. The same plan is now being employed at Fort Collins, Colo., and Cheyenne, Wyo.



Fig. 1—The reflections in the glass practically blotted out the upper part of the figure when the display window was lighted by natural light alone. The camera was placed to get the reflections of the buildings and skyline.



Fig. 2—The conditions are the same as in Fig. 1, with the exception that two spotlights have been focused on the figure. Note how the figure stands out despite the reflections in the balance of the display window.

Floodlights Overcome Daylight Window Reflections
High Power Spotlights Focused on Objects in Window Display
Solve Problem for Cleveland, Ohio, Merchant

Every member of the electrical industry from the smallest contractor-dealer to the largest manufacturer of lighting equipment and the central station manager, is interested in the development of the commercial lighting business for the reason that the installation of proper lighting equipment in stores adds considerably to the profits of the entire industry.

Just as the well lighted show window will stop more pedestrians at night so will the show window that is lighted to overcome daylight reflections stop more people during the day time according to figures presented by Ward Harrison and H. T. Spaulding in a paper entitled, "Overcoming Daylight Reflections in Show Windows" which was presented at the same meeting of the society. The results of the check were made in Cleveland, Ohio, on a window that was particularly subjected to daylight reflections.

The two engineers, working in conjunction with the manager of the store, determined that natural light which had been admitted to the window by means of a skylight, was insufficient to overcome the reflections that were present in the window. Working on the principle that plate glass is under certain conditions an excellent mirror, the engineers endeavored to solve the problem of removing this mirror-like effect of the show windows. They observed that when objects either on or across the street are well lighted by natural illumination, and when the background of the window is dark, the strength of the

reflections is often so great that they will eliminate portions of the display. Attempts have been made to overcome this difficulty by using curved glass, but extensive use has not been made of this scheme. This is due largely to the fact that the base of the glass must be set in the window about a foot and a half or two feet from the ordinary front line of the window. The display thus receives less natural light and in addition the sense of distance is added to the display.

In the installation made in the Cleveland store, the engineers worked on the theory that reflections could be overcome if sufficient intensity of light could be utilized in the interior of the window. The effort was made to make the brightness of the objects in the window greater than that of the reflected objects. Many people have tried to gain this effect by turning on the regular show window lighting units, but the intensity has not been great enough and the results have not been satisfactory.

According to Mr. Harrison and Mr. Spaulding, objects in bright sunlight are illuminated to about 5,000 foot-candles and their reflections in the windows appear to have about one-tenth this intensity, thus an intensity of 50 or even 100 foot-candles within the window would be of little advantage. Illumination of 1,000 or even 2,000 foot-candles would be more of the character that is required. Fig. 1 shows the effect that reflections have upon the value of the show window display.

The first attempts to remove the reflections from the windows of the Cleveland store were made with a spot light which produced about 25 foot-candles, directed toward the principal articles in the windows. It was found that the intensity was not sufficient but the idea of concentrating the light on the objects was determined to be correct. The illuminating engineers were then called into conference and upon their recommendation six floodlights of about 25,000 cp. each were installed. Fig. 2 shows the same window as Fig. 1, but lighted with two floodlights focused upon the figure.

Time	Persons Stopping	
	Lights On	Lights Off
10:15—11:00		45
11:00—11:45	93	
11:45—12:30		87
12:30—1:15	119	
2:00—2:30		42
2:30—3:00	47	
Total,	259	174

Table I—Number of persons stopping to observe display with special lighting off and on.

The window was so arranged that it was impossible to install the floodlights either behind or above the regular lighting units so it was necessary to take advantage of the fact that the window had a false ceiling which had a small hole in it covered by a panel of leaded glass. The panel was removed and new panels were designed to fit the opening. Behind these panels the projectors were mounted in such a way that the interior glass reflector can be tipped at any angle. A rotating circular frame is attached to each reflector so that the horizontal direction of the beam can be changed. The main panel is fitted with diffusing glass and the circle below is of fluted glass so as to eliminate stri-

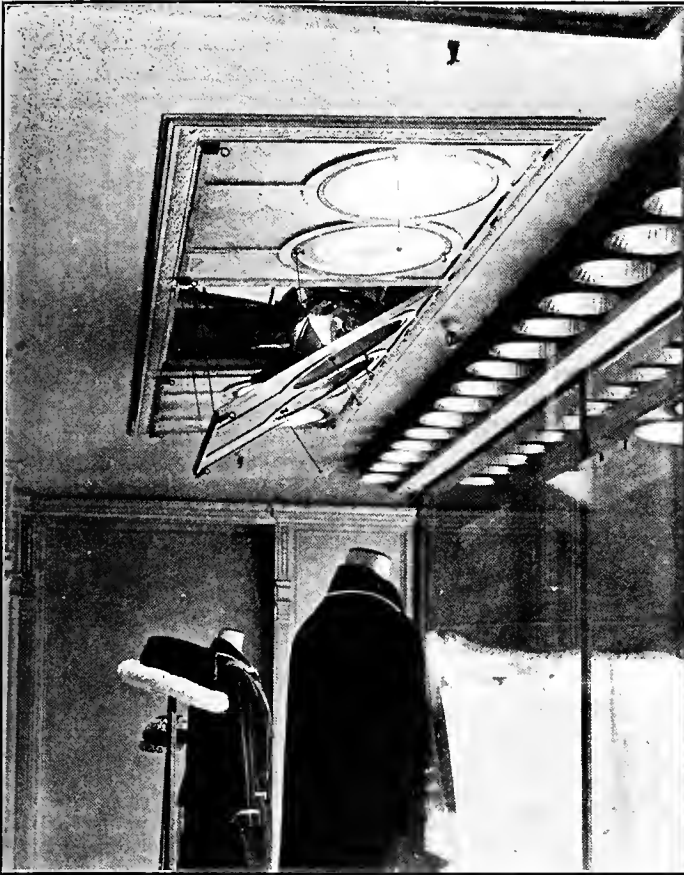


Fig. 3—Method of installing the special reflectors in the Cleveland store. One of the frames is lowered to show how lamps may be reached for cleaning purposes and for renewing.



Fig. 4—The installation suggested by this illustration is adaptable to most show windows in that sufficient space for mounting reflectors is available between top of glass and ceiling.

ations and to give a slight vertical spread to the beam. The panel is hinged so that the projectors may be cleaned. A view of the interior of the window, showing one of the frames dropped for cleaning, is shown in Fig. 3.

Length of Window Along Street	Number of Principal Objects Likely to be Used	Number of 500-Watt Projector Units
4 to 8	1	2
9 to 16	2	4
17 to 24	3	6
25 to 32	4	8

Table II—Number and size of projectors required for typical show windows.

The installation made in the Cleveland store is regarded as a special one as in most cases it will be possible for the electrical contractor to install the projectors between the upper edge of the plate glass and the ceiling. It is more desirable to have the projectors mounted toward the front of the window for in that way the light will strike the front of the object more than when the reflectors are placed nearly above the object. A suggested installation of reflectors in windows which have the ceiling above the top of the glass, is shown in Fig. 4. The correct number and size of projectors for various windows is given in Table II.

The Pacific Coast electrical contractor-dealer can do well to stimulate the installation of proper show window lighting equipment for he will find that every merchant is anxious to increase the value of his window displays. A moderately large store in Massachusetts recently spent in the neighborhood of \$40,000 in changing the background of its display windows from a painted

wood to Circassian walnut. If the modern merchant will spend that sum in changing the background of his windows, will he not spend a considerable sum to install correct lighting units to keep in step with other improvements?

DO YOU REPRESENT OR MISREPRESENT THE INDUSTRY?

By JOE OSIER

It is not my intention to preach to the boys in the electrical business, because—

Most of them, I am sure, know their stuff and are strutting it—still—

There are a few (and at them I aim my slings and arrows) who think that "getting by" means getting ahead and these few are as wrong as the corner store bandit who—

Sells sand for sugar.

The corner store Jesse James soon finds himself on the sidewalk with his goods and chattels beside him and his creditors are paging The Law'r and—

To my way of thinking, this same treatment should be accorded men of the electrical industry who—

Confuse business practices with malpractices.

If every man engaged in the game would assume that he is the only one in his community;—

If he would figure that the growth and success of the industry depended upon his own individual efforts;—

If he would concede that the people in his town judged the electrical industry by their dealings with him—

The game, today, would be on a

firmer foundation—would be riding at anchor in a much safer harbor.

It has been truthfully said: "You are the representative of the electrical business in your community." Therefore, admitting this to be true, it is up to you to see that the industry is fairly represented.

And, in order to fairly represent the industry, a firm must be fair in all its dealings; it must perform conscientious work at a reasonable rate; it must furnish quality goods and service par excellence and—

Do everything possible to prosper the business and keep customers satisfied.

This can be done and is being done daily by thousands of firms throughout this great commonwealth, else—

The boys who worry about overhead and payrolls and wampum in the wallet would have been placed on casualty lists long before this.

And so I say: "Getting by" does not, by any manner or means, assure progress and the shopowner who figures that it does is piling up a deficit which years of hard work cannot liquidate. The "get byer" does not represent the industry, in spite of the fact that some folks may think he does.

He is a fraud—a false alarm—a bum check and the sooner he is pushed out of the picture, the better it will be for the real business men who are willing and eager to—

Exchange material and labor for kale or its equivalent.

Therefore, in all truth and sincerity, I say to the Men of the Industry:—

Either represent the industry or get out of the game—run or pull out of the race.

INDUSTRIAL NEWS



Big Creek No. 3 to Go on Lines Between Sept. 20-25

Big Creek No. 3, the 75,000-kva. hydroelectric plant which the Southern California Edison Company is constructing on the San Joaquin River, will be placed in operation some time between Sept. 20 and 25 according to present arrangements. This is the fourth of the generating stations to be completed of the chain which the Edison Company has projected on the head waters of this stream, and is the largest hydro plant west of Keokuk. Power from the plant will be transmitted to the southern California markets over 240 miles of double circuit, 220-kv. line.

The initial installation will consist of three Wellman-Seaver-Morgan 35,000-hp. 423 r.p.m. vertical turbines operating under a head of 760 ft. These will drive three Westinghouse 25,000-kva., 11,000-volt, 50-cycle generators. Future plans call for the installation of three additional units, giving the plant an ultimate capacity of 150,000 kva.

Tentative Washington Water and Power Act Is Framed

A tentative draft of an initiative measure which provides for the formation of public utility districts in the state of Washington giving these districts sweeping powers, has been prepared and is to be sent to interested bodies in the state. The bill is being sponsored by the Public Ownership League of Seattle and embraces a public ownership program of far-reaching character. The movement was started by Oliver T. Erickson, Seattle councilman and one of the leaders of the public ownership group of that city.

Through the creation of public utility districts machinery is provided for the public ownership and operation of light, power, irrigation, water supply and drainage projects, and in addition, telephone systems. The bill was originally drafted by Thomas J. L. Kennedy, corporation counsel, and was revised by a group of Seattle lawyers. The bill follows the plan under which the province of Ontario, Canada, is operating its publicly owned systems, but in the place of a commission with supervisory powers covering the entire province, the proposal is to divide the authority among local improvement district commissions.

Under the proposed bill, broad powers are granted to the utility districts which are authorized to construct, condemn, purchase, operate, develop and regulate water projects and natural sites pertaining to the hydroelectric power industry, and also provides for the municipal operation of steam or other plants. The size of the public utility districts is not limited and the governing body is to be an elected commission sitting for a period of six years. This commission is to be headed by a president who is to be assisted by four commissioners.

The formation of the utility districts is provided for by stating that these districts can be formed on the initiative of certain numbers of voters, varying from 500 to 100 depending on the size of the county. If the majority of the voters approve of the forming of the district the proposition carries and the district becomes "a municipal corporation of the State of Washington, within the powers prescribed in this act."

In giving the authority for the formation of the public utility districts the tentative draft of the bill gives these districts the authority to (1) conduct a survey of the natural resources of the district; (2) plan a development of these resources, preparing an order for the development of various projects; (3) construct, condemn or purchase and operate light, power, irrigation, water supply, drainage and telephone projects; (4) purchase electric power from municipalities and to sell light, water or power to public or private firms or individuals; (5) issue bonds, general or utility, or borrow money; (6) levy an annual tax on all taxable property not exceeding two mills.

The Public Ownership League has mapped out a course to follow in the placing of the bill before the people of Washington. The tentative draft will first be sent to labor councils, farmers' leagues, civic and commercial bodies and other organizations in order to secure their approval if possible. Petitions for the submission of the bill to popular vote will be circulated early next year. As only 40,000 signatures are needed to get the bill placed on the 1924 ballot, the matter will probably come before the voters a year from this November. A majority vote in favor of the initiative measure would automatically make a law of the bill.

Grant, Smith & Company, Seattle, Wash., will build the proposed Hotel Olympic, the community hotel to cost \$3,500,000, under an arrangement for a fixed contractor's fee of \$125,000. The company's bid was low at \$3,254,000, but additions have been made to the plans which will increase the cost of the building to about \$3,500,000.

Work on Alouette-Stave Project to Be Started in 1924

John Davidson, deputy chairman of the British Columbia Electric Railway Company, London, England, and a director of the British Empire Trust Company, was a visitor to British Columbia during August, making an inspection of the company's property in Vancouver and Victoria. Optimistic as to the future of the company's operations, he announced that between \$5,000,000 and \$10,000,000 would be expended on the system during the next few years.

Mr. Davidson also announced that work would be begun on the Alouette-Stave power development at the beginning of 1924, by which time the approval of the company's plans by the provincial government was expected to be obtained. The initial work will consist of building a dam at the mouth of Alouette Lake, raising the level of the lake 45 ft. and driving a 4,000-ft. tunnel 15 ft. in diameter between Alouette and Stave Lakes. At the mouth of this tunnel, taking advantage of the 140-ft. head between the lakes, a 9,000-kw. power house will be built. This plant will operate at an 80 per cent load factor.

Contemporaneously, work is expected to be started on the fifth unit adjacent to the present Stave Falls plant. This will generate 24,000 hp. at a lower load factor. Later work will be begun on the third plant three and a half miles below, which will generate 80,000 hp. These plans are in the hands of E. E. Carpenter, the company's consulting engineer.

Owing to the company's contract to supply the Britannia Mining and Smelting Company with 6,000 hp. which will begin on completion of the high tension line early in November, and other big contracts which are in anticipation, the load of the company is increasing rapidly and the new units are expected to be required as soon as they can be installed.

On Vancouver Island, proposals are being made for building a high tension line from Victoria to Nanaimo, a distance of 60 miles, to supply several cities and the adjacent coal mines with hydroelectric power from the British Columbia Electric Railway Company's Jordan River plant. Several cities operate their own steam generating stations and if the scheme goes through, they will save considerably by buying power in bulk from the central station company.

The fall meeting of the Electric Power Club will be held at the French Lick Springs Hotel, French Lick, Ind., Nov. 19-22, 1923.

San Francisco Adopts Municipal Ownership Plan

Supervisors Vote City Distribution of Power from 70,000-kw. Moccasin Creek Plant on Hetch Hetchy Project

Unequivocal recognition of municipal ownership and distribution of the power to be developed at the 70,000-kw. Moccasin Creek plant of the Hetch Hetchy project was contained in a resolution passed by the Board of Supervisors of San Francisco at a meeting Sept. 11, 1923. The complete resolution follows:

"Whereas, The City and County of San Francisco faces a crisis in relation to the Hetch Hetchy water and power project, in which \$40,000,000 of the taxpayers' money has already been invested; therefore be it

"Resolved, That this Board of Supervisors is unalterably and unequivocally opposed to the policy of entering into any contract, lease or agreement of any kind or character for the distribution of Hetch Hetchy power to or through any private corporation; and be it further

"Resolved, That this Board of Supervisors hereby declares absolute municipal ownership and direct distribution to consumers of Hetch Hetchy electrical power by the municipality to be the basic policy of the City and County of San Francisco, and that it is the decision of this board that every needed step be taken to put such policy into effect without delay; and be it further

"Resolved, That the negotiations for purchase by the city, and within the city limits, of a distribution system from an existing private corporation, and preferably the Pacific Gas & Electric Company, be placed in the hands of an advisory committee of five citizens to be appointed by the Mayor, and that said advisory committee be instructed to proceed at once and to report within thirty days its progress and recommendations to this board; and be it further

"Resolved, That the city engineer is hereby directed to accomplish the completion of the Moccasin Creek power house and of a transmission system to a point within the city limits of San Francisco, without delay; and be it further

"Resolved, That the city engineer is hereby directed to proceed forthwith with the preparation of plans and specifications for a complete municipal distribution system capable of supplying the city, the householders and the industries of San Francisco with electric light and energy."

An interesting feature of the meeting was the presentation of a report by City Engineer M. M. O'Shaughnessy in which he recommends that the city eventually go into the power business, either by the condemnation of the existing distribution systems of the Pacific Gas & Electric Company and the Great Western Power Company or by the construction of an independent system.

City Engineer O'Shaughnessy in his report stated that proposals had been received from both of the utilities operating in San Francisco to act as the city's agents in distributing the power at a figure which will return the city from \$2,000,000 to \$2,150,000 annually. This is a 5 per cent return on a capital investment of \$40,000,000, or slightly less than the city has spent on the project to date.

The city engineer also pointed out the inadequacy of the power supply

which might be developed in conjunction with the Hetch Hetchy project, stating that the Moccasin Creek plant can supply but 45 per cent of the city's needs at the present time. He gave the capacity of the Moccasin Creek plant as 70,000 kw. which might be increased to 105,000 kw. with the installation of an additional unit. With the development of the North Mountain and Early Intake projects at a later date, the total installed capacity can be brought up to 173,000 kw.

The city to date has spent \$45,000,000 on the Hetch Hetchy development and is faced with the necessity of voting additional millions to complete the project. City Engineer O'Shaughnessy estimates the additional funds needed as follows:

To complete Hetch Hetchy project.....\$	32,000,000
To buy Spring Valley system.....	38,000,000
To build Early Intake and North Mountain power units	18,000,000
Probable cost of distribution system	45,000,000
Annual extensions and additions at cost of \$2,000,000 a year for 20 years	40,000,000
Total.....	\$173,000,000

With the total power possibilities of the project only 45 per cent of the present consumption, more millions must be spent to purchase additional power, and still more money to take care of increased population and power consumption.

The decision of the supervisors to embark upon a program of municipal ownership comes as the culmination of several months of agitation by the two Hearst newspapers in San Francisco.

The editorial on page 198 of this issue was written and had gone to press previous to the time that action was taken by the Board of Supervisors.

Dr. Steinmetz Addresses Three Thousand Denver People

Over 3,000 people listened to Dr. Charles P. Steinmetz, chief consulting engineer of the General Electric Company and internationally famed electrical and mathematical genius, at the Denver, Colo., municipal auditorium, Sept. 4, at a meeting held under the joint auspices of the Rocky Mountain division of the National Electric Light Association and the Colorado chapter of the American Institute of Electrical Engineers.

The subject of Dr. Steinmetz' lecture was "The Electric Power Industry" and a special amplification system was installed in the auditorium for the occasion. In the absence of H. D. Randall, Denver manager of the General Electric Company, Clare N. Stannard, vice-president and general manager of the Public Service Company of Colorado, served as chairman.

One hundred and fifty southern California newspaper editors were the guests of the Southern California Edison Company on a three-day tour of the Big Creek San Joaquin developments of that utility recently. The inspection trip was organized on the eve of the bringing-in of No. 3 Power House. The party returned to Los Angeles Sept. 11.

Construction Work on Idaho Tie Line Started on Sept. 9

Surveys have been completed and construction crews began work Sept. 9, on the proposed connection in the vicinity of Wallace, Idaho, between the power systems of the Washington Water Company and the Montana Power Company. This connection will permit the sale of as high as 20,000 hp. of current by one company to the other and establish a through power connection from eastern Montana to Puget Sound over the lines of the Montana Power Company, the Washington Water Power Company and the Puget Sound Power & Light Company.

Work on the connection is expected to be pushed rapidly under the supervision of the engineering department of the Washington Water Power Company in order to have the tie-up completed during the fall. The new connecting link will extend from the Montana Power Company's station east of Burke for a distance of seven miles to the Mullan Junction substation of the Washington Water Power Company, a few miles east of Wallace. Switches and a bank of transformers capable of handling 20,000 hp. will be installed at Mullan Junction.

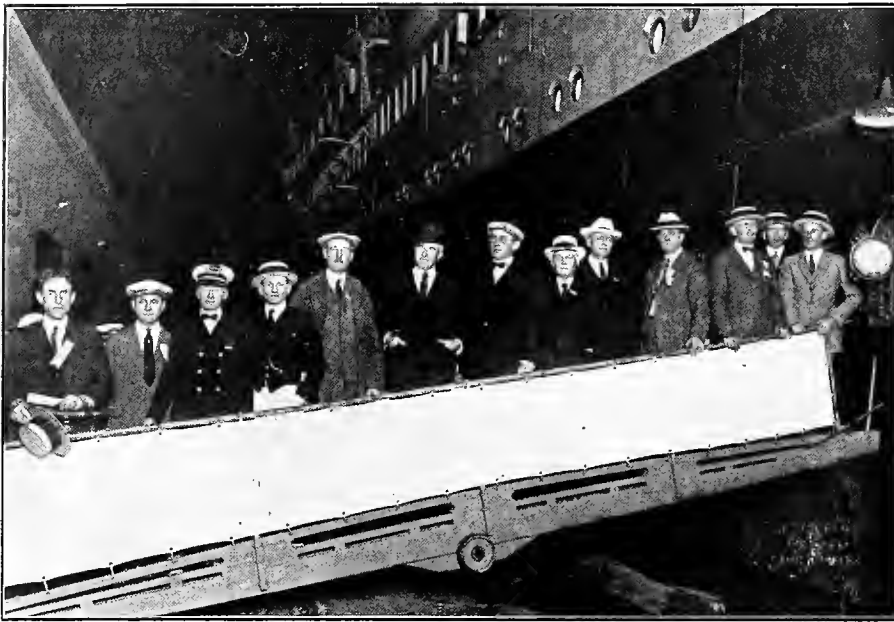
Street Railway Employees Wages Subject of Conference

A conciliation board, granted by the Dominion Government at the request of the British Columbia Electric Railway Company and its employees, who are demanding an increase of 10 per cent in their wages, is sitting in Vancouver, B. C. W. G. Murrin, president of the company, appeared before the board on Aug. 30, and stated that a decrease in the wages would be more equitable than an increase at the present time. The existing working conditions, he averred, were exceedingly onerous, and should be modified in favor of the company.

The present wages and working conditions were adjusted by a conciliation board in November, 1922, which found that the company was entitled to a reduction of 15 per cent in the wages then in force, but recommended that a reduction of only 10 per cent be made at that time and a further reduction of 5 per cent at a later period. The cost of living in Vancouver, Mr. Murrin stated, is lower now than at that time. Furthermore, his company, he stated, is paying a higher rate of wages than any other Canadian company operating a street railway in Canada.

The Pacific Gas & Electric Company

has applied to the California Railroad Commission for approval of an agreement with the Columbia Steel Corporation and an agreement with the Calaveras Copper Company, under which the central station company will furnish power for industrial purposes for a period of five years. The contract with the steel company calls for supplying electric energy at its plant at Pittsburg, Calif., with an initial installation of 5,400 hp. which is to be increased later to 12,000 hp. The other contract is for supplying electricity at the Calaveras Copper Company's plant at Copperopolis, under a guaranteed revenue of \$31,320 per year during the life of the contract.



Members of the Electric Club of Los Angeles boarding the Ruth Alexander preparatory to making the trip to San Diego. Reading from left to right the men are: J. E. McDonald, secretary Joint Pole Committee and chairman of the entertainment committee of the trip; R. B. Schutten, district passenger agent, Pacific Steamship Company; J. G. Loomer, Western Electric Company and captain and general chairman of the trip; William A. Knost, executive secretary of the Electric Club of Los Angeles and purser of the trip; Percy Booth, Pacific Coast manager, Edison Electric Appliance Company; Geo. B. Anderson, manager of transportation, Los Angeles Railway Company; Russell H. Ballard, vice-president and

general manager, Southern California Edison Company; A. B. Cass, president, Southern California Telephone Company; Ben G. Wright, manager, Southern California Telephone Company; D. C. Casselman, secretary-manager, Builder's Exchange of Los Angeles and chairman of the dance committee; Richard E. Smith, advertising agent, Southern California Edison Company and president of the Electric Club; David T. Prenter, formerly of the Southern California Telephone Company and chairman of the publicity committee; J. H. Jamison, manager merchandising division, Westinghouse Electric & Manufacturing Company and chairman of ticket sales.

Electric Club of Los Angeles Takes First Outing

Two Hundred Members and Their Families Travel to San Diego by Boat and Are Entertained by Local Club

Over two hundred members of the Electric Club of Los Angeles and their wives and families embarked on the steamship Ruth Alexander of the Pacific Steamship Company on Aug. 24 to make the trip to San Diego, Calif. The trip constituted the first annual outing of that organization and lasted three days, the return to Los Angeles being made on Aug. 26.

The trip started from the Pacific Electric Railway station where special trains were provided to take the party to the vessel which lay at San Pedro. The ship was boarded about 9 o'clock on Friday night and the journey started immediately. Going down a dance was held aboard ship and a midnight supper was served. Entertainment was furnished by the Southland Trio, who were guests of the Electric Club. One of the features of the trip down was the forming of the Calcutta pool for the golf tournament which was held in San Diego on Saturday morning. This aroused quite a bit of interest among the contestants and among those who bid for the various players.

The golf tournament was held on the Country Club links on Saturday morning under the auspices of the San Diego Electric Club. The tournament was won by K. E. Van Kuran of the Westinghouse Electric & Manufacturing Company of Los Angeles, while John M. Morris of the same company finished second. E. L. Bowler and W. L. Frost, both of the Southern California Edison Company, tied for third place.

On arrival in San Diego on Saturday morning, a committee of the San Diego Electric Club, under the direction of F. R. Smalley and P. P. Pine, boarded the ship and greeted the members of the visiting club and presented each of the visiting ladies with a bouquet of flowers. At 9:30 a.m. the party disembarked and were treated to an automobile trip as guests of the San Diego Electric Club to Point Loma, Marine Barracks, Naval Base and Fort Rosen crans. A picnic luncheon was served at noon on Point Loma by the San Diego Electric Club, after which the motor trip was resumed, and ended in Balboa Park.

After a brief rest, a baseball game between two teams composed of members of the Los Angeles and San Diego electric clubs, captained by K. E. Van Kuran and J. O. Case of the Los Angeles Electric Club, was held. The game ended with the victory going to Mr. Van Kuran's team with a score of 99 to 98.

After the baseball game, field sports were held for the ladies and gentlemen present, the results being as follows: Needle and thread race: won by Mr. and Mrs. F. R. Smalley of the San Diego Electric Club. Ladies' 40-yard dash: won by Mrs. F. R. Smalley of the San Diego Electric Club. Fat Men's race: tie for first place by Arthur L. Spring of the Los Angeles Electric Club and "Doc" A. E. Holloway of the San Diego Electric Club. Old Men's race (contestants over sixty years of age): won

by J. A. McDonald of the Joint Pole Committee, while second place went to E. R. Northmore of the Los Angeles Gas & Electric Corporation. As contestants were limited to men over sixty years and as both McDonald and Northmore are well under that age and had to be assisted over the finishing line so as to assure their victory, they were both fined a considerable amount. Gentlemen's 40-yard dash (contestants over 35 years of age): won by Glen E. Arbogast of the Newbery Electric Corporation, Los Angeles. Gentlemen's 50-yard dash for men under 35: won by William A. Knost of the Los Angeles Electric Club. Boys' shoe race: won by George Walker. Girls' 25-yard dash: tie for first place among the four contestants, Miss Wanda Arbogast, Miss Juanita Arbogast, Miss Phyllis Smith and Miss Catherine Pine. Suitable prizes were awarded for all events and contestants were limited to members of the San Diego and Los Angeles electric clubs and their families.

After the field sports, dinner was served at the Balboa Park club house, under the auspices of the San Diego Electric Club. Then short talks were made by J. F. Zweiner, president of the San Diego Electric Club, Richard E. Smith, president of the Los Angeles Electric Club, and Russell H. Ballard, vice-president and general manager of



J. F. (Jess) Zweiner, president of the San Diego Electric Club, was the leader of the club that entertained the Electric Club of Los Angeles that was headed by Richard E. (Dick) Smith, the president of that organization.

the Southern California Edison Company, who, in a few brief remarks expressed the gratitude of the Electric Club of Los Angeles. The speakers also extended an invitation to the San Diego Electric Club to make a similar visit to Los Angeles.

After dinner special trains and automobiles took the party back to the ship where departure was taken amidst the noise made by K. E. Van Kuran, Percy Booth, Dick Northmore, Glen Arbogast, Harry Walker, Joe Case and other prominent members of the Electric Club of Los Angeles, who tried to outdo the noisy singing of the promi-

sent members of the Electric Club of San Diego, among them being "Jess" Zweiner, Walt Wurfel, B. Biewiner, "Doc" Holloway, Frank Smalley, Charlie Weiss and others of that group.

The grand prize drawings were held aboard the ship, the first prize being won by Miss Cass, daughter of A. B. Cass, president of the Southern California Telephone Company; the second prize by Louis Grime of the Western Electric Company; and third prize by Mrs. Elda B. Davis, wife of the Los Angeles manager of the Westinghouse Lamp Company.

The party disembarked at Los Angeles Harbor on Sunday morning and were taken to Los Angeles by special electric trains. Reports indicate that everyone regretted to leave, as the party was one of the best ever given by the electrical industry and was well attended by all branches of the industry.

Yosemite Power Company Secures Tuolumne River Permit

The Federal Power Commission has recently given a permit to the Yosemite Power Company, of San Francisco, granting rights for the development of hydroelectric power on the South and Middle Forks of the Tuolumne River, near Groveland, Calif. The notification of the granting of the permit was sent to Sanderson & Porter, San Francisco engineers for the power company.

The Yosemite Power Company has long been the owner of the water rights of the Golden Rock Ditch, one of the oldest in California, built originally for mining purposes, and also most of the lands within its two reservoir locations. The Federal permit and license granting the power company the use of government lands for reservoirs and conduits removes the last obstacle in the way of construction.

The company's project includes the construction of two large reservoirs for equalizing the flow of these streams in order to deliver the maximum continuous flow of water for power generation, and two large power plants, one using the water under a head of 630 ft., and the second using the same water under a head of over 1,900 ft. These plants are particularly noteworthy because of the extremely advantageous natural conditions, both for the construction of reservoirs and the high head under which the stored water may be utilized. The total installed capacity of these plants will be more than 30,000 kw.

Port of Portland May Fabricate Diesel-Electric Dredge

Plans are now being considered by the Port of Portland Commission for the construction of the most powerful dredge in the world. According to J. H. Polhemus, the general manager, the dredge will be of the Diesel-electric type, the power to be furnished by four 750-hp. Diesel engines. Two of these engines are already owned by the Port of Portland, having been purchased several months ago from the United States Shipping Board.

The dredge will have a pipe line of 30 in., the same size as the three dredges now in operation, but in power and efficiency it will far surpass the old type. This dredge is needed as the Port of Portland has several years of work in sight for the three old dredges if they are constantly operated.

Correct Illumination Subject of Rotary Club Address

H. T. Plumb, engineer of the General Electric Company, with headquarters at Salt Lake City, Utah., was the principal speaker at the weekly luncheon of the Logan Rotary Club on Aug. 23.

Mr. Plumb gave an address on the value of proper illumination in preventing eye strain, and emphasized the fact that a great deal of the suffering endured by people today can be attributed to improper care of the eyes. He explained, in an interesting manner, some of the proper methods of correct illumination.

Airplane Delivers Mail to Men at Sales Conference

Morning papers and important mail were delivered by airplane to the 200 members of the General Electric sales conference which gathered at Camp Lovejoy, Association Island, Lake Ontario, Sept. 4-8. The flight was made from Schenectady on Sept. 5.

This is the first time the General Electric Company has used an airplane as a special dispatch carrier, or for transportation of any nature, and it is the first time a landing of this kind has been made on Association Island. Parade grounds there form an ideal landing place for the machine. The airline distance from Schenectady is 132 miles, which was covered in about two hours, a saving of five hours over the time required for railroad transportation.

First to greet the pilot was Frank H. Gale, advertising manager of the General Electric Company, who acted as camp manager. Upon receipt of the pouch he made immediate delivery of the letters and papers, the first recipient being President Gerard Swope, followed by the vice-presidents and others. Everyone received mail and there were newspapers for all who wanted them.

Preliminary arrangements for the flight were not divulged and first news of the trip reached the conference when one of the campers noticed the airplane circling at a height of about 1,000 ft. above the island.

Budgets Approved by N.E.L.A. Executive Committee

Budgets for geographic divisions and national activities were discussed and approved at a meeting of the National Executive Committee of the National Electric Light Association at the organization headquarters, Aug. 31. Details of the program for the present administrative year were outlined and the program unanimously adopted at this meeting and at a meeting of the Public Relations National Section Executive Committee, held at the headquarters of the organization, Aug. 30.

One of the most important features of the program will be a national service survey such as was proposed at the June convention in New York City. This survey will be conducted along lines to be determined by a committee which will work out several optional plans.

Walter H. Johnson, president of the Association, announced that he had appointed all committee chairmen and that all committees were actively at work. He requested and received approval of his appointments of committee chairmen for the association year.

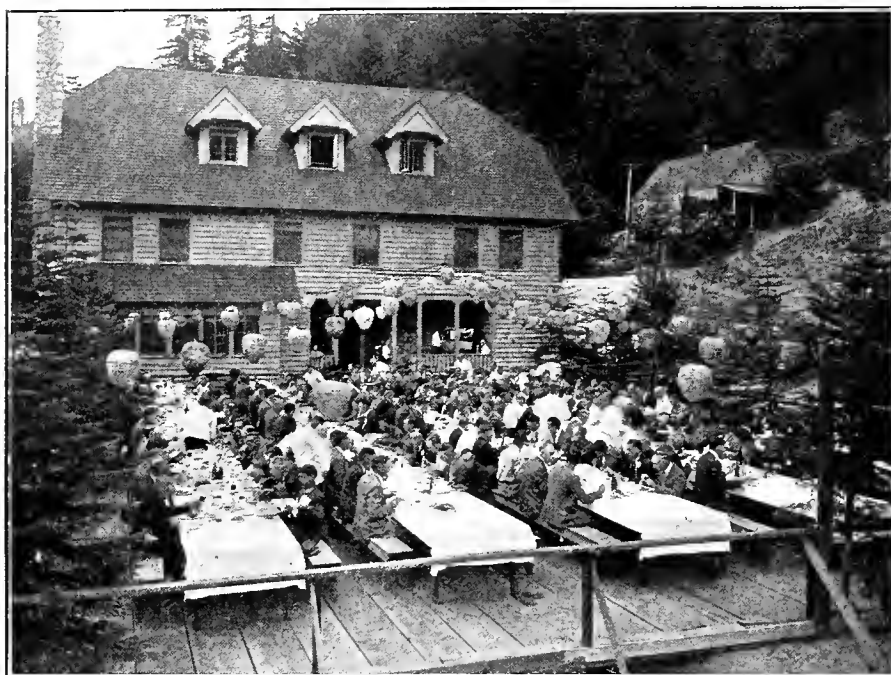
Appliance Demonstration Held by Department Store

The Emporium, one of San Francisco's leading department stores, instituted a new merchandising effort starting Sept. 11. It was planned to have a demonstration in its auditorium of electrical devices for home use, this display to include lamp socket appliances, washers, dish washers, ranges, etc. The appliances were in actual operation and the practical application of electricity to domestic use was well exhibited.

Motion pictures were provided showing the generation and distribution of energy and a course of lectures was presented by the home service representative of one of the local power companies. The entire plan was constructive in design as it was intended to demonstrate practically the advantages of electrical appliances in actual house-keeping.



M. C. Fitzgerald, traffic manager of the General Electric Company, handing the mail pouch to the pilot of the airplane courier which flew from Schenectady to Association Island.



Editors' banquet in front of club house at Drum Power House.

Editors Visit Spaulding-Drum Power Development

Pacific Gas & Electric Company Conducts Inspection Tour for 150 Editors from Territory which It Serves

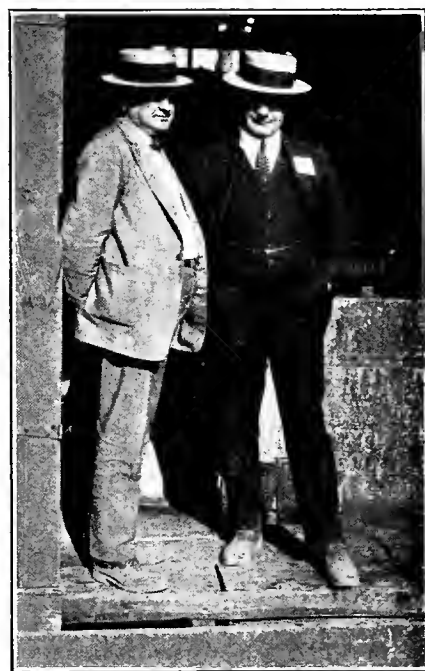
Continuing the policy inaugurated by its public relations department last year, the Pacific Gas & Electric Company conducted a party of more than 150 editors and special writers of central and northern California newspapers on a two-day inspection trip over its Spaulding-Drum hydroelectric develop-

ment, the entire party was placed in automobiles for a trip to Lake Van Norden and Lake Spaulding. Forty-five machines made up the caravan. In each, in addition to the driver, was an official of the company who explained the various points of interest to the passengers as the caravan proceeded through the mountains.

Lake Spaulding was reached shortly before noon. Here the party was served with an elaborate lunch under an arbor which had been constructed along the crest of the dam. Following the luncheon, Frank A. Leach, vice-president and general manager of the company, R. E. Fisher, vice-president in charge of public relations and sales, and P. M. Downing, vice-president in charge of electrical construction and operation, addressed the gathering from a boat anchored in the lake. Members of the party inspected the points of interest about the dam including the two small hydroelectric plants located there and were then taken by machine to Lookout Point where an excellent view of Lake Spaulding, the dam and the Bear River Valley was obtained.

The next stop en route was at Drum Power House, where a program of entertainment had been arranged. Here the party enjoyed a banquet which was served on an outdoor platform in front of the club house. P. M. Downing described the Spaulding-Drum development in detail for the benefit of the visitors and explained the operations of his company in all of its various phases.

After a ride up the incline the party was taken to Colfax where it was again met by the special train. Saturday night was spent on the train. Following breakfast on Sunday, the guests of the company were taken by automobile through the Sutter County fruit belt, water for the irrigation of which is furnished by the Pacific Gas & Electric



H. B. Cooper, manager of Drum division, and P. M. Downing, vice-president in charge of electrical construction and operation, watching editors go down tramway at Drum Power House.

Company. Wise and Halsey power houses were also visited.

Luncheon Sunday was enjoyed at Crystal Springs Park, near Auburn. Following the meal, the party returned by automobile to San Francisco and the various other cities which the editors represented.

The trip was highly successful, no detail having been left undone for the convenience, comfort and entertainment of the company's guests. The entire party, including officials of the company, consisted of approximately 220. The trip was under the direct supervision of Mr. Fisher and Mr. Downing, while the arrangements were under the direction of H. M. Cooper, manager of the Drum division.

Colorado Survey Party Reaches Bright Angel Trail

The party of government surveyors and explorers, which left Lee's Ferry, near the Utah-Colorado line, in specially constructed boats Aug. 1, arrived at the foot of Bright Angel trail in the Grand Canyon of the Colorado River Sept. 1 after a thrilling journey. The party is charting a section of the river never before accurately surveyed.

Colonel C. H. Birdseye, commanding the expedition, stated that the dangers encountered have been less formidable than the party had been led to expect from the reports of earlier explorers. The most important result of the survey so far, Colonel Birdseye said, is the determination of the length of Marble Canyon. The party places the length as 5 miles less than that fixed by the Powell survey.

The party has again resumed its journey through a dangerous section of the canyon, the surveys of which will have an important bearing on flood control and power development on the river. The surveyors are traveling nine days ahead of schedule, and do not expect to get into communication with the outside world again for six weeks.



O. W. Peterson, engineer of general construction, and Frank A. Leach, vice-president and general manager, on editors' trip.

ment in the Sierra Nevada Mountains, Aug. 24-26.

The party left San Francisco Friday, Aug. 24, on a twelve-car special train arriving at Summit, Cal., the following morning. Following breakfast on the

**Pacific Gas & Electric Company
Active on South Yuba**

Work is progressing rapidly on the Pacific Gas & Electric Company's extensive development of the South Yuba water system. The road from Cisco, Calif., into Lake Fordyce is about completed. Lumber for the construction of forms for the pouring of concrete is being cut locally and towed across the lake on barges. The Fordyce dam is the parent reservoir of the old Yuba Water Company's system which was built in 1873 and rebuilt in 1881. It is at the head of a cluster of lakes that feed the Bear Valley watershed and is a landmark of power development in California.

The new construction will raise the dam 47 ft. and will more than double the storage capacity. This reservoir supplies water to the two Drum power houses, the Halsey and Wise power houses, and after this it is used for irrigating Placer County orchards. This development program will cost in the neighborhood of one million five hundred thousand dollars.

In order to use the additional water made available by the enlargement of Lake Fordyce, a second penstock or pipe line will be installed in the Drum power house, involving an expenditure of \$298,400. An afterbay or settling basin will be constructed below the Drum power house to regulate the flow and in order to carry on this work a road will be built from Dutch Flat to the Drum power house, utilizing the old miners' ditch grade for the purpose. A forebay at the Halsey power house, increasing the capacity there from 95 acre-feet to 310 acre-feet, will be constructed by raising the earth dam.

In order to handle the additional water made available by the development, the Drum Canal will be enlarged at a cost of \$113,000. The work is being carried on under the direction of Jim Martin, who has long been identified with the South Yuba power development. As the lake is somewhat difficult of access and the outdoor season in the Sierra region is short, it is estimated that it will take at least two years to complete the work.

**Bureau of Utility Information
Is Formed in Oregon**

To give the people of Oregon accurate information concerning the public utilities operating in that state, the leading public utilities have formed a committee which is to be known as the Oregon Public Utility Information Bureau. Seven of the largest operating companies in the state will be identified with the bureau from the start. An effort will be made to inform the people of Oregon of the services given them by the companies and also of the problems that the companies have to meet.

Negotiations prior to the organization of the bureau have been going on for several months and it was only recently that the personnel of the committee to head the bureau was announced. Franklin T. Griffith, president of the Portland Railway, Light & Power Company, is chairman of the committee, the other members being: John A. Lang, vice-president, Pacific Power & Light Company, secretary-treasurer of the committee; C. M. Brewer, vice-president and general manager of the Mountain States Power

Company, Albany; J. P. Lottridge, vice-president and general manager, Eastern Oregon Light & Power Company, Baker; Paul B. McKee, vice-president and general manager, The California Oregon Power Company, Medford; Guy W. Talbot, president, Portland Gas & Coke Company; and L. T. Merwin, vice-president and general manager, Northwestern Electric Company. W. P. Strandborg, for the last eight years in charge of the publicity and advertising departments of the Portland Railway, Light & Power Company, has been selected to be director of the newly formed bureau.

The companies represented in the bureau are: Portland Railway, Light & Power Company, Portland Gas & Coke Company, Pacific Power & Light Company, Northwestern Electric Company, Mountain States Power Company, Eastern Oregon Light & Power Company and The California Oregon Power Company.

**Progress Being Made on Mystic
Lake Power Development**

Work is progressing on the Mystic Lake hydroelectric development of the Montana Power Company in southeastern Montana. A 20-ft. dam will be built and the lake tapped 40 ft. below the surface. A combination tunnel and pipe line will convey the water to two 6,250-kva. units under a head of 1,150 ft. A wood stave pipe line 54 in. in diameter and 9,000 ft. long will connect with a steel penstock 3,000 ft. in length. The penstock and pipe line will be protected with a Johnson surge chamber.

Twenty miles of road have been finished and contracts have been let to finish the wood stave pipe line and penstock this fall. Most of the power house, generator and water wheel equipment has been contracted for and it is expected to have the plant completed by the middle of 1924. All material and equipment is hauled by auto truck from the nearest railroad, a distance of 45 miles. A 55,000-volt transmission line 27 miles in length will tie the plant in with an existing line at Red Lodge, Mont.

**Steam Turbine Being Installed
at Baker City, Ore.**

Installation of the big steam turbine which will generate electric current for the consumers of the Eastern Oregon Light & Power Company of Baker City, Ore., has started at the present steam plant location in South Baker. D. T. Rutledge of San Francisco, turbine engineer of the General Electric Company, is in charge of the work.

Remodeling of the old steam turbine foundations is now under way. The turbine weighs 24 tons, and the new equipment when installed will operate continuously, having a generating capacity of 1,000 kw. The boilers will produce superheated steam, 125 deg. above normal steam temperature.

One of the special features to be presented at the Iron and Steel Exposition at the Broadway Auditorium, New York, is a completely electrified foundry. This foundry will be in actual operation and will be producing finished castings. This is the first time that an effort has been made to present, at an exposition, actual foundry practice on such a large and comprehensive scale.

**Industries Exposition to Have
Palace of Electricity**

A special section, to be known as the Palace of Electricity, covering an area of 8,000 sq. ft., is to be reserved for the electrical industry at the California Industries Exposition to be held in the San Francisco Civic Auditorium Nov. 17 to Dec. 2. This announcement was made by Clyde Chamblin, chairman of the committee appointed by the San Francisco Electrical Development League to cooperate with the management of the exposition.

The entire floor space of the Polk Street hall of the Auditorium will be occupied by the booths of the electrical industry. This is the only location in which electrical exhibits will be permitted. Each of the booths will be approximately 10 x 10 ft. and the League committee intends to arrange for a lighting scheme and decorative idea which will be typical of the electrical industry.

The electrical displays are to be grouped in this manner in order to impress the public with the importance of the industry. The coming exposition is the third one that has been conducted in San Francisco.

**Federal Power Commission Names
New Representative**

Ralf R. Woolley, hydraulic engineer of the United States Geological Survey, will represent the Federal Power Commission in the development of the Flaming Gorge site on the Green River by the Utah Power & Light Company. Mr. Woolley is considered one of the best informed men on the water power possibilities of Utah, and he surveyed the Flaming Gorge district for his department last year. It is because of his intimate acquaintance with the problems presented that the Federal Power Commission influenced the Geological Survey to loan them his services for the supervisory work.

Under the preliminary permit granted the Utah Power & Light Company, it has three years in which to make preliminary surveys and experiments to determine the feasibility of constructing the dam.

A total of 407 household articles, representing approximately \$20,000 in revenue, were sold by twenty-two district agents of The Washington Water Power Company during August, according to reports from that company. Every article was sold in country territory. The appliances sold include 60 electric ranges, 18 electric washing machines, 55 water heaters, 169 irons and various other articles. J. F. Farquhar, in charge of the outside territory, reported that business has been exceptionally good and that the company expects to double last year's sales in the country districts.

Newspaper reports from Phoenix, Ariz., state that another interstate Colorado River conference is to be held in Washington, D. C., Sept. 24. Governor Hunt of Arizona has appointed a committee of nine, the majority of which is said to be against the Colorado River Compact, to attend the conference where the membership of the Federal Power Commission and representatives of the other interested states will be in attendance.

Meetings

Public Memorial Meeting Held for John A. Britton

A public memorial meeting for the late John A. Britton, who at the time of his death was vice-president and general manager of the Pacific Gas & Electric Company, was held in the San Francisco Civic Auditorium on Sept. 6. The meeting was initiated by the Lincoln Grammar School Association and was participated in by the officials and membership of many of the San Francisco clubs, the San Francisco Red Cross and Boy Scouts organizations.

The San Francisco Electrical Development League was among the leaders in sponsoring the meeting of tribute to the Pacific Gas & Electric Company executive. The total attendance numbered about three thousand. The ceremony was presided over by Frank C. Drew, president of the Lincoln Grammar School Association, who characterized the life work of Mr. Britton. Mayor James Rolph, Jr., Lucius L. Solomons, vice-president of the Lincoln Grammar School Association, and Charles H. Sutton of the legal department of the Pacific Gas & Electric Company were among the other speakers.

Sacramento Selected for Meeting of State Association

The next quarterly meeting of the California State Association of Electrical Contractors and Dealers will be held at Sacramento on Oct. 13, 1923. Special arrangements have been made by J. W. Redpath, secretary, for the chartering of the steamer Navajo to transport the members from the San Francisco Bay territory. This steamer

will leave the Southern Pacific wharf, pier 5, at six o'clock p.m. on Friday evening, Oct. 12, and will return Sunday morning. The fare, including transportation, berth and all meals for the entire round trip will be \$12. The mid-night lunches, which were so popular on the previous steamer trip, will be a feature of the occasion and it is expected that there will be a large number of attendants from all branches of the industry.

COMING EVENTS

Convention of Electric Clubs—

Annual Convention—Association Island, N. Y.
Sept. 16-19, 1923

Rocky Mountain Division—National Electric Light Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

Colorado Public Service Association—

Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

American Institute of Electrical Engineers—

Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

Association of Electragists International—

Annual Convention—Washington, D. C.
Oct. 9-12, 1923

George H. Stickney, manager of the commercial engineering department of the Edison Lamp Works of the General Electric Company, will be the principal speaker at a meeting to be held in Denver, Colo., Sept. 20, under the auspices of the Electrical Cooperative League of that city. As a preliminary to the lighting campaigns contemplated by the League the meeting has been arranged for the entire electrical industry of the city. It will be held in the assembly room of the Denver Gas & Electric Light Company. A special invitation to be present has been extended to out-of-town electrical men.

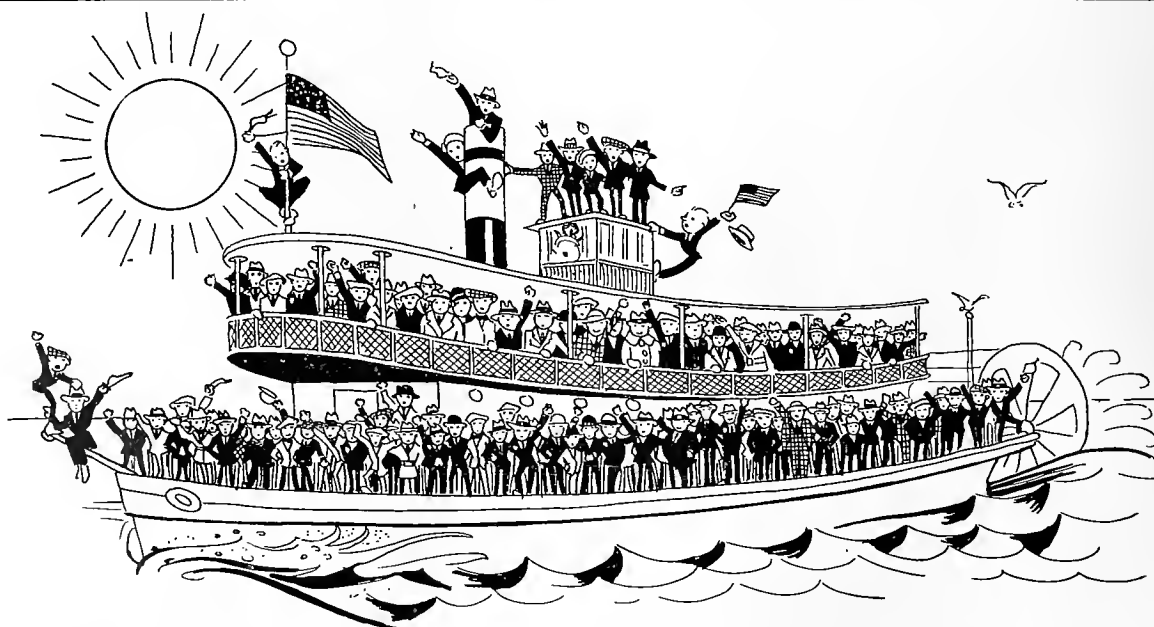
Speaker Claims that Engineers Make Good Business Men

Engineers are finding their way into every business, and because of their technical training they are well qualified to become successful business men and executives, according to Bayard W. Mendenhall, who delivered an address before the All-Engineers Club of Salt Lake City, Utah, at the weekly luncheon on Aug. 27.

The engineer, the speaker pointed out, has an advantage in salesmanship, which is the foundation of practically all businesses, because training in engineering develops many of the qualifications necessary to a good salesman. He emphasized the advantage of knowing materials and workmanship, stating that technical training should qualify one to determine quality. Unerring and quick decisions, attributes of the successful executive, are developed in the training of the engineer, he said.

The Electric Club of Seattle on Aug. 22 held a banquet at the Hotel Gowman, at which Norwood Brockett of the Puget Sound Light & Power Company was toastmaster. The list of speakers included: J. D. Ross, city light superintendent; R. J. Gille, Puget Sound Power & Light Company; Lloyd Spencer, Seattle Star; Harry J. Martin, National Carbon Company; J. J. Agutter, J. J. Agutter Company; W. M. Meacham of Meacham & Babcock; W. E. Jones of the Economy Fuse Company and president of the club. The banquet was part of the preliminary ceremonies in connection with the opening of the club's electric home and exposition on Aug. 25.

Starting the new association year, the commercial committee of the Pacific Coast Electrical Association will hold its first meeting at Fresno, Calif., Oct. 19 and 20, according to tentative arrangements. A. E. Holloway of the San Diego Consolidated Gas & Electric Company is chairman of the committee.



The California State Association of Electrical Contractors and Dealers en route to Sacramento. When this live wire bunch charts a steamer and goes on a trip it DOES things as may be judged from the action portrayed here. The trip forms an unusual combination of business and pleasure and should be taken by every contractor-dealer who can possibly get away. Special rates, special eats, special fun! The call is out for everybody to get aboard.

Manufacturer, Dealer and Jobber Activities

The Stewart Electric Company, Seattle, Wash., has moved from 912 Post Street to 206 First Avenue, to a larger and better equipped building.

The Vaughn Electric Company, formerly at 812½ Pike Street, Seattle, Wash., has leased quarters at 2131 Third Avenue, where it has moved its office and warehouse. In addition to general electrical construction work, the company has added an engineering office for preparing light and power wiring plans for architects and owners. The company recently opened a retail store at 4240 University Way, where a complete line of electrical appliances is carried, and lighting fixtures are manufactured.

R. D. Thomas has been appointed district representative for the Rocky Mountain territory of the National X-Ray Reflector Company of Chicago. Mr. Thomas will also represent the Federal Electric Company, with which concern he has for some time been connected in various capacities, and will at the same time handle the business of the George Richards Company.

Benjamin Littlefield, of the floor sales department of the Denver Gas & Electric Light Company, was presented with a check for twenty dollars on account of having arranged the window decoration which was entered in the Landers Frary & Clark Universal Iron contest. Mr. Littlefield, who was formerly a branch manager of the Edison Electric Illuminating Company, of Boston, presented such an attractive display that his company was awarded one of the prizes offered by the manufacturer.

The F. W. Wakefield Company, Vermillion, Ohio, has just brought out a new type of fixture chain which is said to have unusual characteristics. It is made of No. 5 gage solid brass and the joints are off center, thus overcoming the tendency of links to wedge open when subjected to strain. The new chain is called "Absotite," is said to have approximately twice the normal strength of chain of similar gage and will be supplied on all commercial lighting hangers supplied by this company in the future.

The Cutler-Hammer Manufacturing Company has recently brought out a new electric water heater for circulating systems. It is made in sizes from 750 watts to 3,500 watts, equipped with snap switch. Full information can be obtained from their circular No. 3067.

The Reynolds Electric Company, Chicago, has published a circular on RECO flashers for electric signs, displays and traffic signals. The circular, which contains wiring diagrams and other data, will be sent on request.

The Liberty Guage & Instrument Company, Cleveland, Ohio, has just brought out a very attractive counter and window display for use with its products. The display has considerable attention-getting value and should prove of assistance in connection with the sale of Liberty hot plates.

Condit Electrical Manufacturing Company has issued its bulletin No. 445-2 covering the subject of oil circuit breakers. This bulletin will be of interest to engineers and central station plant men.

Pierson & Boren have opened a new electrical supply store at 529 S. Pacific Ave., San Pedro, Calif., where they will do a general retail and contracting business.

The Harbor Electrical Company, Wilmington, Calif., has recently moved into new and larger quarters at 404 N. Canal Street, that city. Frank McGinley, the proprietor, is one of the successful contractor-dealers of the southern section and is an active worker in association circles of the Los Angeles Harbor district.

The C. & B. Electric Shops, Los Angeles, has just been incorporated with C. P. Broughton as president, W. P. Lohman, vice-president and D. M. Corcoran, secretary-treasurer. The company does a general supply and contracting business and has just moved to larger quarters at 2353-2355 West Washington Street.

The Westinghouse Electric & Manufacturing Company has just brought out a new publication called "Counter Points" which is intended to be of material assistance to electrical merchandise dealers. The magazine contains many live points and is exceptionally attractive in its appearance. It should prove of constructive interest to every member of a sales organization.

The Hart & Hageman Manufacturing Company, Hartford, Conn., has recently acquired the entire capital stock of the H. T. Paiste Company, Philadelphia, Pa., and in the future the two companies will be operated as one. Mr. Paiste will continue active in the new company.

Clapp & Lamoree, Los Angeles, Calif., have just been appointed California agents for the Clifton Manufacturing Company, Boston, Mass. They will handle the tape and splicing compounds only, as Keeler, White & Company, San Francisco, will continue to represent the factory on conduit.

The Automatic Electric Heater Company, Warren, Pa., has recently brought out a new control for its Sepco electric water heaters which permits of time control as well as full automatic control. The device is known as the "Timer" and face plates are furnished in either nickel or brushed brass, with a jeweled pilot light and toggle switch.

The Elwell-Parker Electric Company, Cleveland, Ohio, has issued very interesting photographs and descriptive matter on its electric industrial trucks for use of millwrights and electric maintenance departments, and also of its electric chisel trucks for picking up objects close to the floor, such as bundles of metal, etc.

The McPhilben Lighting Fixture Company, New York, has just issued an attractive catalog of additions to its fixture line. The catalog may be obtained by addressing the manufacturer.

Landers, Frary & Clark, New Britain, Conn., have recently brought out a new domestic electric toaster known as the Universal Oven Toaster. The toaster is an innovation in style and claims are made as to several advantages over the former types.

The Indiana Rubber & Insulated Wire Company has announced that the George A. Gray Company, San Francisco, has been appointed Pacific Coast sales agent for that company's products. Mr. Gray is now in the East and will visit the factory before his return to San Francisco.

Portus Baxter, Jr., has joined the western sales force of the National X-Ray Reflector Company with headquarters at Los Angeles. Mr. Baxter will confine his efforts at present to the southern territory under the direction of F. S. Mills, western district manager for the company.

The Western Transformer Company has moved to new and larger quarters at 618 East 11th Street, Oakland, Calif.

The Robbins & Myers Company, Springfield, Ohio, has recently brought out a new line of constant speed, induction type polyphase motors known as "Type L."



The electrical contractors of Los Angeles were nearly all in attendance when the Ruth Alexander sailed from Los Angeles Harbor on Aug. 24. Judging from the expressions on the faces of the men grouped for this picture, everybody on the trip had a good time. Reading from left to right the men are: Paul D. Howse, president Electrical Products Corporation; Glen E. Arbogast, president Newbery Electric Corporation; H. H. (Harry) Walker, electrical contractor and president of the Electrical Contractors and Dealers' Association of Los Angeles; J. F. (Jess) Zweiner, president J. F. Zweiner Electric Company of San Diego; A. P. Richards, F. E. Elser Electric Company; J. L. Mullenback, salesman Safety Electric Products Company.

Personals

C. E. Heise, San Francisco district manager, Westinghouse Electric & Manufacturing Company, has been elected the manufacturer member from San Francisco of the Advisory Committee



C. E. HEISE

of the California Electrical Cooperative Campaign to succeed K. E. Van Kuran. Mr. Heise is a native of California, having been born in San Francisco, and was graduated from the University of California in 1898. Shortly after graduation, Mr. Heise was employed by the San Francisco office of Westinghouse Electric & Manufacturing Company and for several years was engaged in installing motors, generators, and other electrical apparatus. After some years of field experience, Mr. Heise was sent to the East Pittsburgh Works of the Westinghouse Electric & Manufacturing Company for a course of training, after which he returned to San Francisco and continued in engineering work for a number of years, later being transferred to commercial work with the San Francisco organization of the company. In 1912, Mr. Heise was appointed San Francisco district manager, since which time he has continuously been in charge of his company's activities in this territory. Mr. Heise was one of the original organizers of the San Francisco Electrical Development League, and is a past president of that organization. Aside from the great interest Mr. Heise has always taken in the electrical industry, in which he is a leading figure, he is also a prominent member of the Bohemian Club, Olympic Club, Engineers' Club and Transportation Club. He has been a potent factor in the development of California and the West, and was largely influential in bringing to northern California the new factory of the Westinghouse High Voltage Company at Emeryville. Mr. Heise is a veteran employee of the Westinghouse Electric & Manufacturing Company, where he has served for over twenty-five years.

R. E. Wenk, former designing electrical draftsman with the Pacific Gas & Electric Company, is now sales engineer with the Puget Sound Power & Light Company, Seattle.

E. N. Brown, formerly president and general manager of the Majestic Electric Development Company of San Francisco, has recently entered the real estate and investment business in that city. Mr. Brown is maintaining offices in the First National Bank Building.

A. L. Miltenberger has been appointed district manager for the Wagner Motor Corporation with headquarters in San Francisco, to succeed A. J. Myers.

Clare N. Stannard, vice-president and general manager of the Denver Gas & Electric Light Company, with his family is touring Yellowstone Park by automobile. The trip will require about a month.

O. G. Thorpe, manager, Listenwaller & Gough, Los Angeles, and James Addis, sales manager of the same firm, have just completed a trip of several weeks to eastern factories. They report unusual activity among all branches of the industry. Manufacturers are well supplied with orders and price indications are firm with possible advances in some lines. Mr. Thorpe and Mr. Addis stopped in San Francisco on their return to visit their recently opened offices there.

E. M. Sweeley, president of the public utilities commission of Idaho, has resigned. Mr. Sweeley was appointed to the commission in 1919, and his term would have expired Jan. 1, 1925. Fred C. Graves, of Flier, Twin Falls County, has been appointed to succeed Mr. Sweeley.

David C. Pence, manager of the lamp department, Illinois Electric Company, has just returned from a six weeks' trip spent visiting the various lamp and lighting fixture manufacturers in the East.

C. P. Soderberg, formerly connected with the sales organization of the Westinghouse Electric & Manufacturing Company, is now in the sales organization of the Illinois Electric Company, handling the central station and corporation trade.

E. M. Harvey, sales manager, Woodill & Hulse Electric Company, has just recently returned from an extensive trip in the East where he visited the various factories which his organization represents in the Los Angeles territory, principal among them being the factory of the Eureka Vacuum Cleaner Company.

Fred Fair, prominent geologist and irrigation engineer of Boulder, Colo., has been appointed to the executive staff of the Lakeside Construction Company which is now building the new \$12,000,000 steam generating plant for the Public Service Company of Colorado, at Valmont, close to Boulder.

C. Gleason Scott, a member of the firm of Scott Brothers Electric Company, is a charter member of the new Cooperative Club, organized in Denver. The club is similar to the other business luncheon clubs and is rapidly extending its organization to the Pacific Coast. Mr. Scott represents the electrical contractors and dealers of the city in the new organization.

Harry L. Harper, manager of Western Electric Company, Los Angeles, recently returned from a well earned vacation spent on the island of Catalina.

Ralf R. Woolley, hydraulic engineer of the United States Geological Survey, has returned from Uintah basin, where he went to gather information regarding water power sites. H. F. Kilmer, assistant topographic engineer of the United States Geological Survey, went with Mr. Woolley for the purpose of making a topographical survey of the country. Data gathered on the trip will be used by Mr. Woolley in classifying the land for entry.

L. P. Doyle, of the industrial sales department of the San Francisco office of the Westinghouse Electric & Manufacturing Company, is the first successful competitor in that office to receive one of the war memorial scholarships offered by that company to its employees. Four such scholarships are awarded every year on the basis of a competitive examination. Each carries with it the payment of \$500 annually to be applied toward an engineering education in any higher institution of learning that the candidate may choose. The scholarship runs for four years.

O. L. Mackell, recently elected to head the Electrical Cooperative League in Denver, is a central station man whose position as chief clerk and office manager of the Denver Gas & Electric Light Company does not identify him directly with either the commercial or operating departments proper of the company. However, during the ten years he has been connected with the electrical industry of Denver he has always been found active in the affairs of the N.E.L.A., the Denver Civic and Commercial Association, and other business groups. Since the organization of the Electrical Cooperative League in that city he has been a member of the Advisory Board and served last year as treasurer of the organization. His election as chairman of the organization became effective with the new fiscal year starting July 1. He is a native



O. L. MACKELL

of Johnstown, Pa., and until 1913 was associated with the American Bridge Company as the Pittsburgh representative of the company at the Carnegie Steel Company. He was formerly head bookkeeper and in charge of the collection department of the Denver power company until he received the appointment to his present position in June, 1921. He is a director of the Doherty Men's Fraternity and also of the Victory Highway Association.

H. H. Courtright, manager, Valley Electrical Supply Company, Fresno, Calif., has recently been in San Francisco to attend the executive committee meeting of the California Electrical Co-operative Campaign.

E. B. McKinley, for several years proprietor of the Paso Robles (Calif.) Electric Shop, has sold his business to **Sidney Bretherton**, formerly proprietor of the Atascadero Electric Shop.

J. C. Naylor, 184 Tenth Street, Portland, Ore., who has for some time been western manager for the Eden Washing Machine Company, will now act as distributor in Oregon, Washington, Idaho and Montana for the Eden washing machine and other electrical labor saving devices.

Roy Worth, newly appointed assistant manager, Pacific States Electric Company, San Francisco, Calif., was born in Iowa. He graduated from Simpson College and some time thereafter moved to Seattle, joining, in 1908, the sales force of the Seattle Electric Company—which later became the Puget Sound Light & Power Company. A little later Mr. Worth became connected with the sales force of Holabird Electric Company and has since been in the electrical supply jobbing business almost continuously, occupying among others, the important positions of district manager, Northern Electric Company, Vancouver, B. C., and assistant to the general sales manager of the American Eveready Company. In 1914 Mr. Worth joined the sales force of the Pacific States Electric Company at Seattle and since that time has served that company, holding the following positions: assistant treasurer, assistant district manager at Seattle, and for the past three and a half years district manager of the Seattle branch. He has taken an active part in the affairs of the electrical industry in the Northwest and has been one of its conspicuous figures. Among other constructive movements

Walter T. Wells has resigned his position with the Mountain States Machinery Company of Denver to become sales manager of the King Manufacturing Company, with headquarters in Chicago. Mr. Wells was considered one of the foremost street lighting experts in the Rocky Mountain region and his new position will provide a much larger territory for activities along the same line.

L. A. Robinson, western sales manager, Meadows Manufacturing Company, Bloomington, Ill., with headquarters at 854 South Hill Street, Los Angeles, was a recent visitor to San Francisco. He plans to make a business trip through the Northwest, returning to San Francisco in about a week, at which time he will meet **H. L. Barker**, general manager of the Meadows Manufacturing Company, who is making a business trip to the Pacific Coast.

Frank A. Short, former electrical engineer of the State Accident Commission, is now connected with the Safety Electric Products Company of Los Angeles as a consulting and advisory engineer.

Tracey E. Bibbins, president, and **D. E. Harris**, vice-president and general sales manager of the Pacific States Electric Company, were recent visitors to Seattle, where they inspected the Seattle branch and installed **August Lutz** as manager of the Seattle district, to replace **Roy Worth**, who has been advanced to the position of assistant manager. Mr. Bibbins was accompanied by Mrs. Bibbins and daughter, and Mrs. Harris completed the party.

H. F. Flagg, chief engineer of the State Board of Public Works at Olympia, Wash., has been selected by appraisal engineers of the city of Yakima and the Pacific Power & Light Company to arbitrate reports of the other two engineers in fixing the valuation of the company's water system which the city contemplates purchasing.

R. M. Richardson, sales manager of the Lettak Fire-Brick Arch Company, is a recent visitor to the Pacific Coast and during his trip appointed **Oliver B. Lyman** as San Francisco representative.

A. B. West, president of the Southern Sierras Power Company; **K. E. Van Kuran**, Los Angeles district manager, Westinghouse Electric & Manufacturing Company; **Girard B. Rosenblatt**, Pacific Coast manager, metal and mines department, Westinghouse Electric & Manufacturing Company, were among those members of the electrical fraternity who journeyed to San Diego to witness the total eclipse of the sun on Sept. 10.

Claude D. Allen, formerly New York representative of the Garlock Packing Company, has taken over the management of the company's business on the Pacific Coast with headquarters at San Francisco. Before coming to New York, Mr. Allen was in charge of the Boston office.

Richard E. Smith, advertising agent of the Southern California Edison Company and president of the Los Angeles Electric Club, together with **Charles H. Peirson**, director of publicity of the Southern California Edison Company, recently conducted a party of several hundred newspaper men of Los Angeles and southern California over the Southern California Edison Company's holdings in the Big Creek region.

Prof. Royal D. Sloan, who has served as assistant professor of electrical engineering at Yale University during the past year, has recently been appointed associate professor of electrical engineering at the State College of Washington, at Pullman. Professor Sloan is well known in engineering circles in the Northwest, having grown up in the state of Montana. He was graduated in electrical engineering at the University of Montana in 1913 and was employed for two years on test work with the General Electric Company. Return-



PROF. ROYAL D. SLOAN

ing to Montana he was engaged on the Thompson Falls development of the Montana Power Company, later becoming assistant professor of electrical engineering at the Montana State College, Bozeman. At the outbreak of the war Professor Sloan entered the navy and was assigned to the battleship *New Mexico* where he had charge of the electrical equipment of the first electrically driven battleship, serving under **Commander Evans**, son of "Fighting Bob Evans." After the war Professor Sloan returned to Bozeman and was associate professor of electrical engineering for several years. He will arrive in Pullman early in September to take up his new work.

John Stone has been presented with a medal by the Institute of Radio Engineers in recognition of his conspicuous and distinguished service to the radio industry. This medal is given each year to the individual who has contributed the most to the advance of radio communication.

Obituary

Frank G. Drum, formerly president of the Pacific Gas & Electric Company, died very suddenly on Aug. 28 at his apartments in San Francisco. Mr. Drum was one of the pioneers of hydroelectric development in California and had for years been prominently connected with the industry. From 1907 to 1920 he was president of the Pacific Gas & Electric Company and was succeeded, on his voluntary resignation, by **W. E. Creed**. He was also prominent in the financial world and was actively connected with several oil and railroad companies.



ROY WORTH

Mr. Worth was instrumental in the formation of the Seattle Electric Club and has been a leader in its activities. He has also assisted very materially in the organization and display of all electric homes held by the Seattle Electric Club and has devoted a large part of his time to constructive work and thinking for the entire industry in the Northwest. Mr. Worth takes up his new work with a wealth of experience and ability and a wide circle of friends in the trade.

Trade Outlook

San Francisco

The summer lull is gradually being dispersed and trade conditions are improving. Labor conditions are not yet satisfactory, particularly in the building trades. New construction continues at a marked rate and some materials show price advances. Retail buying is increasing and the electrical trade is participating in the benefits of increased volume of trade.

Electric range and domestic heating equipment business continues to increase notably and is a feature of the general market. Supply business continues to increase, being affected by the steady volume of building, which continues without interruption.

The entire electrical industry is interested in the Japanese catastrophe and responded freely to the appeal for relief.

Collections continue good and the entire tone of the electrical business is extremely optimistic.

Los Angeles

All building records in the history of Los Angeles for a month were broken during August, when permits totaled \$22,249,262, bringing the year's total to \$131,221,720.

There was a noticeable falling off in the bank clearings as indicated in a statement just released by the Los Angeles clearing-house, the totals for August showing a decrease from July of \$195,072,221. The decline from the record total of July is accredited principally to seasonal causes and the fact that business as reflected through bank clearings, has reacted only partially to the customary summer dullness is taken as a favorable forecast for fall business and industrial operations of some magnitude.

The sale of electrical merchandise has slumped a little during the summer months, and this has enabled manufacturers to catch up on some lines of stock which for many months have been badly depleted. On the whole business has kept up at a very fair pace although sales have slackened due to the decrease in purchasing by the larger oil companies.

Electrical retail business has likewise occasioned a slight falling off in the amount of sales, but this is only to be expected at this season. The sale of radio sets and supplies has been beyond expectations all summer.

Portland

During August this year the general business conditions existing in Portland and vicinity were better than in July and during August of a year ago. Bank clearings in Portland for August of this year show a gain of 17 per cent over the same month for 1922. Portland receipts showed a gain of over 19 per cent for the same period, while exports from Portland to foreign ports for August of this year show a gain of approximately 50 per cent.

In the lumber industry the conditions remain about the same. Production is holding up well although there are some rumors of certain mills cutting down to a one-shift basis. Mills continue to produce far above normal and orders continue to absorb the output. Prices are said to have reached bottom.

Residence construction continues in all parts of the city with an apparent speeding up to take advantage of favorable weather. Building permits for August showed a good gain over last year, making the totals for the two years to date about equal.

Crop conditions in Oregon are excellent and producers will receive a considerably greater total amount for their products than in 1922. The Columbia River salmon pack has been estimated at over \$6,000,000, wholesale prices, which is slightly higher than a year ago. The fish are of fine quality and the market favorable.

There is considerable conjecture about the possible effect of the Japanese catastrophe on Portland's trade. The best opinion seems to be that it will cause a cessation of shipments for a time, perhaps, with an increase of business eventually.

Seattle

The beautiful electric home and exposition under auspices of the Seattle Electric Club has stimulated interest in electrical devices. Washers, vacuum cleaners and lamp socket appliances have been moving well and prospects for the fall season are excellent.

New building is proceeding steadily and it is expected that the total of building construction values will reach \$25,000,000 for the year, thereby setting a record. Lumber exports for the first seven months of the year show that the total cargo shipments from Washington ports exceeded one billion and a half board feet, an increase over a corresponding period of last year of nearly half a billion feet. The outlook for lumber business this fall is excellent, with production at high level, to replenish greatly reduced stocks throughout the Northwest.

Flour shipments to the Orient gained substantially during the past seven months. Increased activity in wholesale and retail trade of Seattle is noted with the beginning of the fall season, many lines already showing a decided quickening. Clearance sales by department and specialty stores held prior to the opening of the fall business have made good returns.

Spokane

General conditions remain about the same and all comments are optimistic. The output of many of the local wood-working establishments was curtailed during August and the Sperry flour mill doubled its output of flour. The good weather has been extremely favorable for harvesting and a normal movement of wheat is anticipated as soon as the threshing season is over.

It is reported that a record shipment of fruit will be made from the Inland Empire. An indication of this is found in Walla Walla's prune crop of 1,200 to 1,250 carloads. The previous record was 792 cars in 1921. The present crop will bring from \$30 to \$35 per ton in eastern markets.

August mining activity improved slightly over July, with a sharp drop in Coeur d'Alene lead production because of the recent fire at the Hecla properties. The Sumpter smelter, in eastern Oregon, is preparing to operate and began buying ore, stimulating activity in that district. Otherwise new operations of magnitude are lacking, with metal markets unfavorable under the present costs of production.

A car repair shop is to be built at Hillyard, just north of Spokane, and will provide employment for 300 men. It is intended eventually to increase the size of this plant and to build there all fruit cars needed for northern railroads.

Salt Lake City

The approach of the fall season gives promise of an unusually busy period in industrial lines. Building activity will also continue unabated during the fall weather.

Crops of every kind are better this year than they have been since 1918, and the farmers apparently will receive better prices than for the past two or three years.

In response to a definite demand for homes, building activities in Salt Lake City for the month of August showed a healthy increase over the preceding month and the same month last year. It is predicted that before building operations are halted at the end of the season there will have been 1,500 new homes added this year to Salt Lake's housing facilities.

From many sources come increased demands for electric service. Electrical jobbers in this territory also continue to report a considerably greater volume of business than for last year.

Retail business in general is fair, with collections showing a marked improvement.

Denver

Conservatism still pervades trade circles in the mountain region. Business in most lines is good but the atmosphere can hardly be said to be optimistic although building operations, bank clearings, labor conditions, and other primary factors are generally satisfactory.

Construction permits dropped off in August, permits totaling a decrease of \$631,000 over the same month of 1922. The total, however, for the first eight months of the year is two million dollars greater than for the same period last year.

Due to these financial difficulties and the summer season depression, buying has been slow. This is reflected in the movement of electric appliances, although washing machines and vacuum cleaners have been up to the average. Frequent campaigns on electric ranges throughout the state are getting results. Because of price uncertainties, supply of conduit is running at low ebb. Line material business is reported fair and commercial lighting units are moving freely.

SAN FRANCISCO
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Journal of Electricity

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October 1, 1923

San Francisco



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Journal of Electricity

A McGraw-Hill Publication

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G. W. BARKER, Associate Editor
J. W. OTTERSON, Assistant Editor

G. C. TENNEY, Managing Editor

ROBERT SIBLEY, Consulting Editor
CLOTILDE GRUNSKY, Contributing Editor

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Five Phases of Retail Merchandising

AS a further step to increase its scope of usefulness to the contractor-dealer and at the same time the other branches of the electrical industry, the Journal of Electricity has conducted an investigation into the various branches of retail merchandising. The results of this investigation have been carefully analyzed and the individual features of the retail business have been segregated. Feeling that individual treatment of these various features will be of benefit to the contractor-dealer, a series of articles has been prepared and will commence in an early issue of the paper.

These articles have all been written by men foremost in the particular activity of which they write and should present every progressive retailer of electrical supplies and appliances some interesting facts concerning some phase of his business.

The articles are as follows and will appear in the order indicated:

Buying and Ordering, by Grover Anderson, Sales Manager, Electric Appliance Company.

Packing, Shipping, Receiving and Unpacking, by George Browning, Traffic Manager, Pacific States Electric Company.

Displaying and Advertising, by H. C. Hopkins, Advertising Manager, Majestic Electric Appliance Company.

Selling and Servicing, by C. R. Musladin, Sales Manager, Alexander & Lavenson Electrical Supply Company.

Credits, by John Bray, Credit Manager, Western Electric Company.

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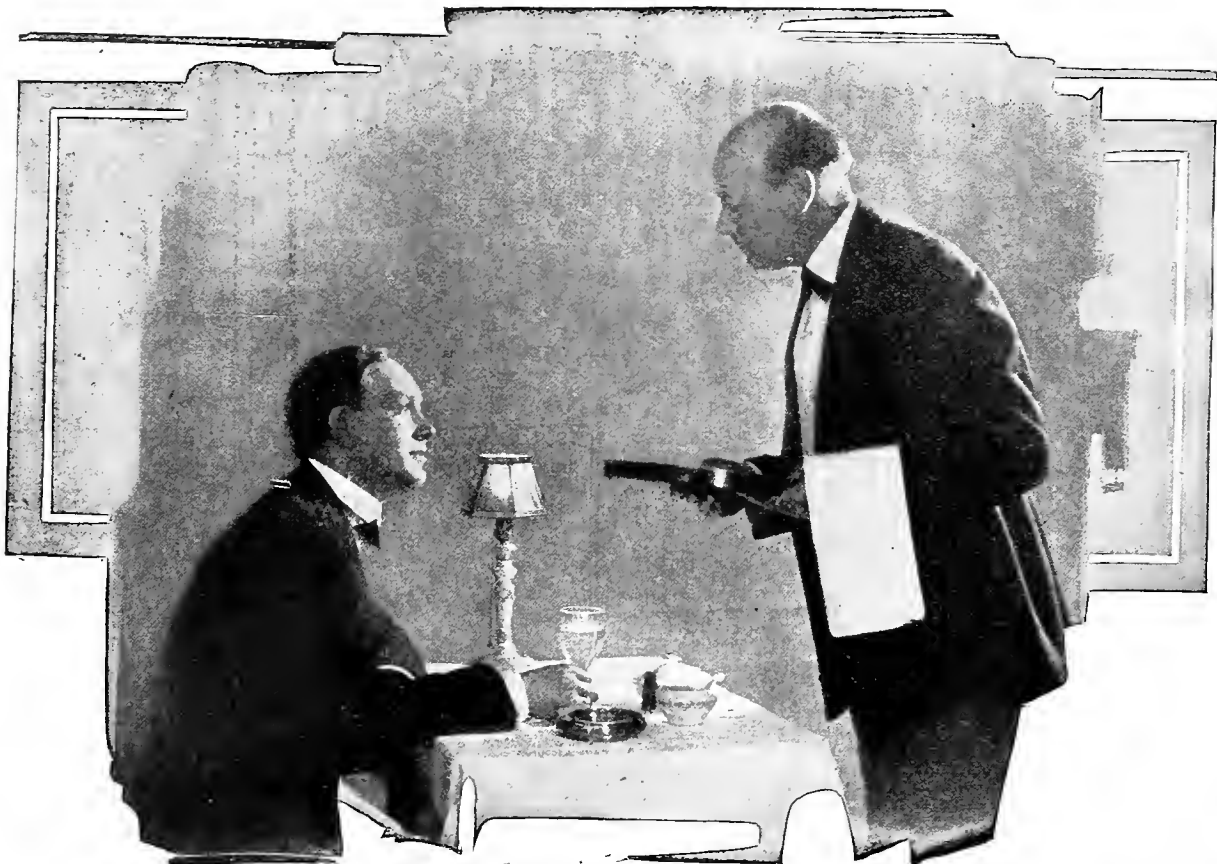
American Machinist Ingenieria Internacional

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Engineering and Mining Journal-Press

Bus Transportation Engineering News-Record

Coal Age Electrical Merchandising Power



“—and a Cup of Coffee”

The menu card includes many tasty and expensive suggestions. Diners scan it for the particular dish that appeals to their palates and their pocket books.

They have different tastes and their demands take different forms,—until the grand and glorious finish. Then comes the almost universal order—“and a cup of coffee.”

At the end of the day the restaurant proprietor has made more money on sales of coffee, than on any one of his expensive items.

How like the electrical supply business! Lamps, Fans, Irons, Toasters, all must be stocked to cater to different demands. Yet the users of all of them must purchase wiring devices.

And just as with the coffee—the total profit on wiring device specialty sales means much in dollars and cents at the end of the day.

It's the little things that count after all. And wiring devices are little things.

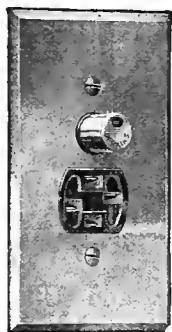
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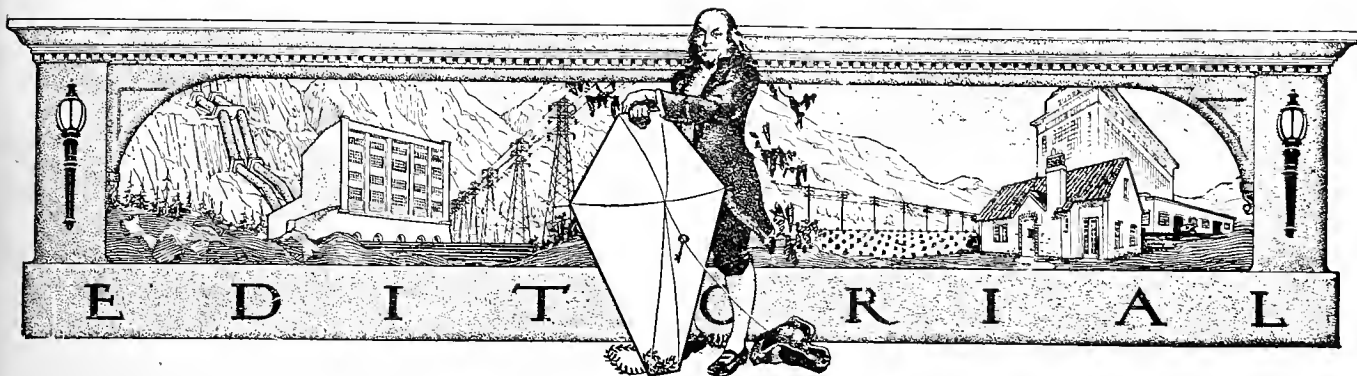


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844 West Adams St.

SAN FRANCISCO
149 New Montgomery St.



The Interdependence of Public Relations and Sales

PUBLIC relations has held the center of the stage in the thoughts and discussions of central station executives for many months. And now these months of conspicuous attention are beginning to bear fruit. Recognition is being given to the interdependence of public relations effort and commercial activity. The task of selling to the public the service which the utility renders, which was formerly delegated to the departments in charge of public relations, has been found to have a definite relationship to the functions of the sales department,—namely, the creation of a greater volume of business through a more comprehensive understanding of the real meaning of service. So there has been conceived a new title, “vice-president in charge of public relations and sales,” whose duty will be to direct the combined efforts of these two departments.

ON another page of this issue is described the sales service plan of the Pacific Gas and Electric Company. This company is firm in the belief that the job of conveying to the public the service message is a task in super-selling. It starts with

the employees as the most important asset in accomplishing this program. To every member of the organization, from the president to the youngest office boy, the following pledge is suggested:

“I am at all times the individual personal representative of and for this company regardless of my department or duties, and it is for me to see that the policy of this company—that of rendering service in its broadest sense—is carried on.”

IN that pledge lies the success of the scheme. With an organization imbued with the spirit therein contained, great things can be accomplished.

WE are convinced that the company is on the right track. It has evolved a plan for other men to follow, a plan which is sound, practical, constructive. Above all it is a plan which accomplishes the main objective of both sales and public relations departments—the maximum use and value to the consumer of the commodity served.

Central Station Possibilities in Electric Range and Water Heater Sales

THE electric range and water heater have passed entirely the stage of doubt and disbelief. From the domestic point of view they have proved themselves all over the country and the demand from progressive housewives is increasing at such a rate that manufacturers have been obliged to increase plant facilities in order to keep up with orders. The demand, too, has attracted new manufacturers to this field and their product is selling in volume to substantiate their judgment. It has been proved beyond doubt that no other cooking medium offers such a factor of popularity or such potential sales possibilities.

This development has in most cases been because of central station assistance and encouragement. Most power companies after thorough investigation of all the phases of this type of load are convinced that it has many desirable qualities and they are now active in its development. No one can tell the extent of the ultimate saturation for no company has yet been able to reach that point. Campaign after campaign has proved again and again that the demand is ever-continuing and that education alone is necessary for greater use of this equipment.

Many notable sales plans have been executed by central stations and commendable results achieved. Only recently, as told elsewhere in this issue, sales campaigns in the northwest and southwest, alike, have produced results which added to the lines from 15 per cent to 79 per cent of the previously existing range load. Certainly, any appliance which is in such demand or which offers such sales possibilities must command the attention and respect of all power companies, particularly when these devices are served at an attractive rate and under favorable load conditions. Dealers, also, are devoting increased attention to the sale of the heavier load consuming devices for domestic use. Under the skilful guidance of the central station, and following plans mapped out by this branch of the industry, they are building up for themselves a profitable business and for the power company a continuing revenue which is very attractive in character.

The central stations of the West are certainly to be commended for taking the initiative in this move, thereby proving their progressive policies and performing a sociologic and economic good for their consumers.

Electrical Fires, Cats, Fireflies and the Like

IT has been the custom in the past, when other cause did not offer or was not convenient, to blame the origin of many fires to electricity. It has been proved beyond doubt that in many cases this has been an unjust allocation of the cause of the damage. Now, however, arises a new theory as the result of the disastrous fires which recently swept over a large part of California.

From the fact that the fires arose at such widely separated points and, further, from the fact that so

many fires occurred at practically simultaneous moments, thereby eliminating the probability of carelessness or intent in every instance, it has been suggested that there may have been a static condition created by the atmospheric phenomena at the time, and that mere friction of exceedingly dry leaves or twigs rubbing against other material of a similar kind may have generated a spark which ignited the very inflammable surroundings. Pure buncombe, you say.

Well then, perhaps a dozen energetic cats in as many different places, simultaneously rubbed their backs against convenient trees, creating static sparks that started the fires. Or possibly the same number of lusty fireflies, seeking relief from the warm weather, crawled into piles of dry grass, and, lo! the fires started. Munchausenism, you declare. So, also, is a great part of the talk relative to the so-called electrical origin of many fires. The sooner that every man in the electrical industry in his contact with the public, spreads the information that, properly applied, electricity is the safest, least hazardous, most efficient and most convenient agency for the betterment of humanity, the sooner will the odious shadow of blame for fires be removed from over the head of the fair Goddess Electra.

Commercial Illumination As a New Business Field

THE electrical industry throughout the country has suddenly awakened to the fact that commercial illumination offers one of the greatest undeveloped fields for potential business in its history. Surveys have been made which show that but a small fraction of the stores of the country are adequately lighted. Show window intensities are woefully low and many store interiors have but one-tenth the intensity which common practice recommends.

Progressive merchants have quickly realized this deficiency once its existence has been pointed out to them. In this highly competitive age they have been quick to grasp the possibilities of better illumination as an aid to better merchandising. In every locality where steps have been taken to demonstrate the sales value of good lighting the reaction has been immediate.

Central stations, contractor-dealers, jobbers and manufacturers, recognizing these possibilities, have banded together in many localities in promotional campaigns designed to take advantage of this new business field. Noteworthy among such campaigns are the steps which are being taken by the California Electrical Cooperative Campaign with its better merchandising display exhibit and the Lighting Service Bureau which has been organized in Salt Lake City and which is described on another page in this issue.

In connection with the latter, the central station placed its windows at the disposal of the merchants of Salt Lake City for use in displaying their particular wares. Lighting technic was taken care of by the illuminating engineers of the company. Each

merchant was allowed the use of the windows for three consecutive days. Thus good-will in the mind of the merchant was created and his interest definitely directed toward better illumination.

In every city the central station offices have windows which might be used for this purpose. The step taken by the central station in Salt Lake City is a highly commendable one and one worthy of emulation by power companies in every city in the West.

**Difficulties in the
Comparison of Rates**

COMPARISON of rate schedules are of frequent occurrence, the object being, as a rule, to justify the practice of the community or the company whose representative makes the comparison. And it is surprising how many different cases can be proved and what a divergence of results can be obtained by comparing the same rate schedules. The rates of the Ontario district in Canada, which were compared favorably or unfavorably (depending upon whether the speaker was an advocate of public ownership or the reverse), with those of California cities were an example of the absurdity to which such a comparison can be carried. Owing to the fact that in this case the rates were reckoned on the one hand in terms of horsepower-years and on the other in kilowatt-hours, no fair comparison was possible, unless it be on the basis of average rates for the entire system. As the present state ownership contest in the state of Washington develops, however, it will be found that this will not prevent the alleged "low" rates of Ontario being quoted as the major argument in favor of public ownership.

This is an extreme case, perhaps, but almost equally variant results can be obtained by playing with the rate schedules of any two companies on the western slope, selected at random. Average rates may be and are compared by newspapers, orators and others seeking to put something over on the public, with maximum charges in another district, combination rates are compared with flat rates, rates for special districts with those of an entire system.

There is perhaps some justification for the confusion in the form in which rate schedules are presented by the various companies. There are hardly two which are alike in nature—and even if the rates are actually similar in structure, they are usually clothed in such different language and present such a different appearance, that it takes an expert to discover the fact. There is already too much confusion in the mind of the consumer on the subject of rates. Is it not worth while for the western companies to consider the standardization of their forms between companies and districts so that this confusion may be lessened? Under the wise leadership of Herbert Hoover and the pressure of post-war necessity, brick factories, screw makers and other manufacturers have standardized their products to a few standard sizes. This same principle might well be applied to rate forms. It would clarify the situa-

tion so far as comparisons between power companies is concerned. Perhaps some day it will be possible to bring the municipalities under utility commission regulation—and then a fair comparison with municipal rates may become possible.

**Education Needed to
Improve Rural Installations**

STANDARDS in electrical installation on the farm are greatly improved over conditions which prevailed a few years ago, but there is still too much careless wiring which is a source of fire hazard. Undoubtedly the most unsatisfactory condition which prevails in isolated installations is the use of improper controlling equipment which permits the motor to operate on single phase energy when it was designed for two or three phase operation. The fused knife switch used to control motors under 5 hp. and the starting compensator preceded by a fused knife switch controlling motors over 5 hp. are a prolific source of trouble. In either of these cases, the failure of one fuse will permit the motor to operate in a single phase condition, and if the remaining fuses are heavy enough and the motor remains on the line it will ultimately burn out the windings and possibly reach the ignition point. Single-pole fuses used on power company lines instead of three-pole oil switches will sometimes cause an entire group of motors in a community to operate on single phase upon the failure of a single fuse on the power company's group service line.

The fault lies partially with the manufacturer who to date has not brought equipment with two no-voltage coils which would eliminate the possibility of motors operating single phase.

Western power companies for their own protection are rapidly eliminating this equipment, but the need for keeping down the expense of rural service, limits the amount of capital which can properly be expended—and the burden of this protection should not be placed alone upon the shoulders of the central station. The owner has a responsibility, as well as a vital self interest in guarding his equipment against the single phase condition. The insurance which the owner receives in case of the burning down of a pumping plant in no way compensates him for its loss. The cost of protection is not prohibitive, especially if bought with the original equipment of motors and would add a nominal cost only to the total value of the electrical features.

Here is a subject on which education is needed. The electrical contractor in the rural community, and the power company salesman who arranges the original installation can both do their part in improving the situation. The insurance company could very properly work out a practical plan by which all electrical users who take out insurance would be required to live up to certain fundamental fire protection requirements. The only reason that the owner does not act of his own accord is because he remains in ignorance of what excellent service proper electrical control will really perform for him.

CURRENT COMMENT



So-called public ownership and control of essential industries is providing one of the chief topics of active political discussion today. Here on the Pacific

Municipal Ownership on the Pacific Coast

Coast the electrical industry is receiving its share of attention from the municipal ownership propagandists. Los Angeles is on the verge of another election contest sponsored by the Board of Public Service Commissioners. San Francisco, through its Board of Supervisors, has expressed its desire to enter the electric power business. A small minority of the voters of Sacramento have voiced a similar desire. In Berkeley, Oakland and Alameda, there has been created a municipal utility district with broad powers. Conditions in Modesto and Turlock with reference to the sale and distribution of power from Don Pedro dam under direction of the irrigation districts are not all that was expected when the movement was launched. In Washington a state water and power act based on the bill which confronted the voters of California at the last election, has been drafted and will be voted on next year. Last but not least there is definite assurance that a new and less pernicious draft of the California Water and Power Act will make its appearance on the ballot in November, 1924.

Developments in San Francisco are being watched with considerable interest for it is felt that whatever action that city finally takes will establish a precedent for others to follow. The press of the city is divided, with the Hearst journals actively agitating municipal ownership and the more conservative papers decidedly against the hasty action taken by the supervisors. The San Francisco Journal in its editorial columns says:

Hetch Hetchy power will not be available for some time to come. Some say one year and some say several years after the necessary money has been furnished. That gives plenty of time to consider the matter. Prudent men will want a lot of information to help them decide whether or not it would be wise for the city to engage in this gigantic extension of municipal ownership. They may think it a better plan to sell the current at wholesale for the present instead of inviting a rate war with existing companies and involving many millions of additional debt.

Similarly the Chronicle is inclined to make light of action. In one of its editorials, it says:

This whole noise about electric current from the Hetch Hetchy is a mass of bubbles before election. Why are these men with gigantic brains who are running our city posing with hands on their manly chests over the great things they are going to do for us? They will not sell electric energy when they have no means to utilize it—they would rather let it run to waste up there in the Hetch Hetchy district.

The City Engineer in his report states:

"Failure to provide for such temporary disposal of the Moccasin dam power output when the plant is ready for operation will, on the basis of offers made by the power companies, subject the taxpayers of San Francisco to an annual loss of not less than \$2,000,000."

But the Supervisors do not want to make this money for the city. Apparently they want to lose it, for their resolution provides in emphatic and definite terms:

"The Board of Supervisors is unalterably and unequivocally opposed to the entering into any contract, lease or agreement of any kind or character for the distribution of Hetch Hetchy power."

Now, after having adopted that resolution, they are opposed to the sale or utilization of the electric current until they are prepared to handle it as a municipal proposition. Meantime, the poor taxpayers will be virtually robbed of \$2,000,000 or more a year over a period of from five to ten years.

Later in the week, the following appears in the Chronicle:

The City Engineer, in his report, stated that the Moccasin Creek plant would have to be enlarged and developed in order to supply the demand for electric current, and also that plans for a new distributing system necessarily would contemplate installation of an underground wire system. To supply the city of San Francisco with the electric energy from the Moccasin Creek plant, he estimates, will cost \$45,000,000. He also says it will take four years to install it. We think it will take nearer ten years to execute the orders and complete the necessary work.

We know it will take ten years to put in 60,000 underground connections and do the other work necessary in San Francisco. Meantime, the Supervisors announce their determination not to sell electric energy to the people of San Francisco through the medium of the power companies—they prefer to sacrifice the \$20,000,000 which would come to the city through such an arrangement, simply because they want to put on a grand-stand act.

The Sacramento Bee, which is one of the chief agitators for municipal ownership in that city, has the following to say in support of the action taken by San Francisco:

But those private corporations had refused to negotiate for the sale of their local distributing systems, and the city government was mindful of the fact that condemnation proceedings would involve a delay of years.

Furthermore, and this appears to be one of the most important points of the whole matter, it is declared that sale by the city of the Moccasin Creek power to a private corporation would be a violation of conditions imposed in the grant by the federal government of the water and power rights embraced in the Hetch Hetchy project, in which the city already has invested some \$40,000,000.

Furthermore, Judge Raker is quoted as saying he wrote that provision into the act for the express purpose of preventing the power control from being taken away from San Francisco, and to make it an "inheritance" for her people.

So there seems to be warrant for the suspicion—even the accusation—that the offer of \$2,000,000 a year by private corporations for the power in question was not made in good faith, but in the secret hope of inducing the city government to violate the terms of the federal grant of the Hetch Hetchy

rights, and so bring about forfeiture and an opportunity for the same corporations to gain possession of them.

Fortunate indeed is the city by the Golden Gate that at this time she has a mayor and a board of supervisors watchful of her interests and free from corporation control.

An important point, which will carry a great deal of weight with the voters should the proposition be put to them, is brought out by the Journal, when it states:

Fifteen thousand San Franciscans hold securities in the Pacific Gas and Electric Company.

Seven thousand others own stocks and bonds in the Great Western Power Company.

This total of 22,000 San Franciscans represents one-third of the entire number of stock and security holders in those two corporations in California.

They will be the ones who will be directly affected if the city carries through the Hetch Hetchy resolution adopted by the Board of Supervisors and the burden of their losses will fall upon the shoulders of the taxpayers of San Francisco.

Regarding the condemnation of the lines of the two companies serving San Francisco at the present time, as directed in an ordinance which the supervisors are considering, the Chronicle says:

This startling demand, in effect, is much like cutting off the head of a man to see whether or not his body will continue to exist. The power companies have invested millions upon millions of dollars in development of hydroelectric power throughout the State, and are producing a tremendous amount of electric energy in order to take care of the business of San Francisco. This attempt to condemn and take away from the power companies at one blow their distributing systems, which have taken twenty years to build, is, as it appears today, impossible of accomplishment.

The city of Los Angeles made a somewhat similar attempt in 1920, when it began condemnation proceedings against the Mono Power Company and the Southern Sierra Power Company, with the avowed intention of appropriating the rights of those companies. These condemnation proceedings were carried to the United States District Court and a decision was rendered by a local jury in favor of Los Angeles. This decision was appealed to the United States Circuit Court and, on November 8, 1922, the court, consisting of Judges Morrow, Gilbert and Hunt, reversed the decision of the District Court.

In the findings by the United States Circuit Court it was pointed out that no showing had been made that the public use of a municipal corporation, such as the city of Los Angeles, was more necessary than that of a utility, privately owned, serving other communities.

An appeal was taken from this ruling to the United States Supreme Court, whose decision, according to the law of the land, should have been fixed upon the minds of the people charged with conducting the affairs of this city. The United States Supreme Court held that a municipality has no right to condemn private property which is being used for public service to individuals or to municipalities and that, so long as the public is being served, it makes no difference through what agency.

A contrary decision would have had great possibilities of evil, for no one can tell what city might run amuck in private investments of this character, which might well unsettle the titles of all public utilities in private ownership. The decision of the United States Supreme Court stabilizes private investment dedicated to public utilities in all parts of the United States. May 21, 1923, the United States Supreme Court denied a writ of review in this case and on August 20, 1923, the United States Circuit Court of Appeal denied the motion of the City of Los Angeles to reopen the case, thus settling the matter once and for all.

In Los Angeles a letter containing sixty-eight pointed questions covering the many charges of incompetence, mismanagement, waste of public funds and politics-playing against the Bureau of Power and Light has been submitted to the Board of Public Service Commissioners. Some of the questions as reprinted in the Los Angeles Times follow:

Is it a fact that the taxpayers have paid to date from increased taxation a total of \$6,467,436.25 to pay interest and sinking fund charges on power bonds after it had been promised during the 1910, 1914 and 1919 bond campaigns that these charges would be paid from power revenue?

Is it a fact that if the power bureau kept its books in the same manner that private corporations are forced to keep their operating costs and charged interest, depreciation and taxes, that instead of the \$2,362,000 profit claimed, the result would have been a loss? On what basis of figuring interest, depreciation and other normal items for conducting the business was the claimed profit arrived at?

The power bureau declares that it has made a profit of \$2,362,000 during the last fiscal year. If so, where is the money? Was it spent together with the \$749,367.94 turned over by the Edison company for betterments to the distributing lines, and the additional \$500,000 asked for from the tax funds of the city to prevent the alleged overloaded distributing lines from "blowing up"?

Is it a fact that if a private corporation uses the aqueduct water it would be forced to carry the depreciation and maintenance costs, as well as interest on the investment to the extent of not less than 50 per cent? And if this is a fact, what would be the amount that should be charged?

The following paragraph is taken from the reply to the letter as issued by the Board of Public Service Commissioners:

The facts of the matter are, that the Power Bureau is operating on a sound financial basis and during the past year did return a surplus of more than \$2,000,000 after every allowance had been made for operation expenses, payment of all interest and sinking fund requirements on electric bonds and the setting aside of a depreciation reserve fund.

Despite this \$2,000,000 book profit, it is reported that the board recently found itself in such a financial position that it was forced to "borrow" \$500,000 from the general tax fund of the city in order to continue operations. In the face of the defeat it suffered when it asked for \$35,000,000 at the last municipal election, the board is now planning to ask the city council for a special election some time in the near future for the purpose of voting not \$10,000,000 or \$15,000,000 but \$50,000,000 in order that it may continue its power development program.

First echoes of the fight to be waged over the California Water and Power Act next year were heard at a meeting of the Central Labor Council at Stockton during the past fortnight, when resolutions were passed recommending that the measure be again placed on the ballot. It is known that the proponents of this scheme are not slumbering but that they are planning a new bill which will be less pernicious from the public standpoint, but fully as effective from their own.

The little Water and Power Act which has been drafted for the state of Washington embodies parts of the California measure and the statutes which govern the Ontario Power Commission, together with some original ideas of the local municipal ownership propagandists. It declares as its aim, the conservation of the resources of the state and then goes on to outline some amazing powers which will be vested in the boards which it creates. Some of these powers follow:

Construct, condemn or purchase and operate light, power, irrigation, water supply, drainage and telephone projects.

Purchase or sell light, water, or power.
Borrow money or issue bonds, general or utility.
Levy general tax not exceeding two mills.



WORK is progressing on the Mystic Lake hydroelectric development of the Montana Power Company in southeastern Montana, where a 12,500-kva. plant is being constructed. West Rosebud Falls on the outlet side of the lake contribute a portion of the 1,150-ft. head under which the turbines will operate. The development will be completed by the middle of 1924.

A Sales Service Program for Public Utilities

By Don C. Ray

Manager, Bureau of Public Relations,
Pacific Gas and Electric Company, San Francisco, California

AT no time in the history of public service companies has the item of good-will weighed so heavily or received so much attention. It has come to be the major factor in the consideration of executives and all plans for utility development give it serious thought. With the public good-will all things are possible but without that good-will ultimate destruction looms. This has been written boldly in the pages of public service history and these pages have marked the passing of the old-time arbitrary, "public-be-damned" official.

Many companies have established separate departments for the purpose of telling the company's story of its operations and for selling to its consumers its service message. These departments are of increasing importance and the scope of their work is rapidly broadening. Very logically such work falls into the sales category and is generally directed by the vice-president in charge of sales.

Such a department, organized and functioning under R. E. Fisher, vice-president in charge of public relations and sales of the Pacific Gas and Electric Company, San Francisco, California, has made notable progress in the furtherance of public relations and has in addition made each employee of that company feel that he individually is responsible for the success of the entire department.

The Pacific Gas and Electric Company from its inception has fully appreciated the soundness of the theory that the major function of a public utility is one of service to society. Its present position in the utility field is due in a very large measure to the persistent and continuing support of that theory throughout the entire period of its growth. It was one of the pioneers in this respect and early adopted its trade emblem or slogan of "Courteous—Continuous Service." Throughout its entire existence, an effort has been made by the organization that the consuming public may have a full realization of the value of service when developed in its truest and broadest sense.

It is evident then in arriving at a service sales program, the prime objective is service. The importance of sales, however, should not be underestimated. It must be conceded that commodity sales are a vital factor in the success of all industry. The disposition of a commodity, however, is poorly made unless it has been sold with a view of rendering a real service to the consuming public, and to the degree that the public is adequately served

THE major function of a public utility is service to society. A proper conception of this duty by employees and its interpretation in terms of desire to serve build for the utility a consumer organization which becomes a stalwart friend. Mr. Ray has presented a plan which is in part responsible for the development of good-will by a leading western utility.

depends the future progress of the industry. Service and sales are therefore seen to be inter-related and inter-dependent, and their development will best be accomplished when due recognition to that principle is given.

The formulation of the service sales program as now in effect contemplates an orderly and definite plan to successfully and speedily accomplish one main objective—the maximum use and value to the consumer of the commodity served.

The entire program is predicated on enlisting the earnest support and cooperation of all those whose assistance is necessary to its successful accomplishment. This is outlined in the nature of self-interest appeals to the various component factors involved, namely—

- First—Appeal to the Employee
- Second—Appeal to the Stockholder
- Third—Appeal to Consumer
- Fourth—Appeal to Dealer
- Fifth—Appeal to Public.

The employees of any industry, when properly educated and instructed, constitute a very tangible and important asset. The employee's attitude when contacting with the consumer or public reflects, or should reflect, company policies, and provides the most direct expression of those policies. The importance, therefore, of proper employee attitude is paramount. It is obvious that if the employee is to perform his full function in this respect, he must be kept fully conversant with the company's basic aims and objects. It is the company's responsibility to see that this is done and a brief description of the general plan followed is outlined herewith.

Appeal to the Employee

The practice of the company in performing this responsibility has been by means of short addresses by a competent company employee, and which are presented at group or sectional meetings of the Employees' Association, an organization 6,000 strong. Some idea of the character of the addresses may be had from the following list of subjects:

1. Definition of Service
2. Fundamental Company Policies
3. Value of Courtesy
4. Proper Use of Telephone
5. Relation of Service to Good-Will
6. Advertising Value of Employee Contact with Consumer.
7. Sales Possibilities of Employee
8. Ownership of Company Securities.

At the conclusion of these short addresses, the meeting is conducted as an open forum for a full discussion of the subject presented. The employee is impressed with his importance in the company organization, and is encouraged to give complete expression to his individual view. As indicative of this the following pledge is suggested to each employee:

"I am at all times the individual personal representative of and for this company regardless of my department or duties, and it is for me to see that the policy of this company—that of rendering service in its broadest sense—is carried on."

Each regular employee of the company is provided with a complaint and prospect booklet to be carried with him at all times, and to be used for the purpose of reporting promptly to the interested divisional office any complaint or prospective business which may come to his attention in his contact with the consumer. The complaint or prospect slip is signed by the employee and provides a record by which the activity of any particular employee may be appropriately acknowledged. All slips forwarded are at once referred to either the service or sales department, as the case may be.

Appeal to Stockholders

District stockholder meetings at all central points on the company's system are held from time to time. Altogether some 24 of these meetings have been conducted. They are addressed by officers of the company, who present a general report on the company's activities, its accomplishments and its problems. The stockholders are urged to offer constructive suggestions and criticisms concerning the conduct of the company's affairs.

All stockholders are placed on the mailing list for the company magazine, a copy being forwarded them each month. In addition to this, they are from time to time circularized with informative literature pertaining to the company's activities. It is the aim to keep the stockholder informed at all times of just what the company is doing and to enlist his support and assistance in every way possible, that the service which the company is endeavoring to render may be consistently maintained at a high standard.

Appeal to Consumer

All large power and gas consumers are being circularized with a letter expressing the company's appreciation of their business, defining the service of the company in its largest sense, and calling attention to the engineering service which the company maintains to improve the efficient use of its commodities. A copy of this letter which is sent out over the signature of the local division manager is given below.

"The Pacific Gas and Electric Company greatly appreciates your business and desires to render you the best possible service at all times. We are constantly expanding and improving facilities in order that our service to you and our other customers may be efficient and reliable.

"We maintain a staff of expert sales engineers who would be glad to help you solve any problems in your business relative to illumination, power or heating, either gas or electric; and their service in an advisory or consulting capacity

is placed at your disposal free of charge. A systematic canvass of all large consumers is now being conducted and our experts will call upon you in due course, but if you have any specific problems that require immediate action, if you will kindly write or telephone to our nearest office, your request will receive prompt attention.

"We would welcome suggestions from you at any time as to how our service may be made more satisfactory."

Return postal cards are mailed to all consumers, the return addresses being to the local divisional office. The following appears on the body of the postal card:

"We appreciate the opportunity of serving you and it is our constant endeavor to make that service as nearly perfect as possible. If we have not fully accomplished this purpose, you are urged to make reply to the questions appearing on the return postal card attached, and mail it promptly to this office. Either complaint or request or both, will receive our best attention."

This card is signed by the local division manager. On the reverse side of the postal card the following questions appear:

- (1) Is the service being rendered you by this company satisfactory? If not, what suggestions have you for its improvement?
- (2) Have you made any complaints of our service that have not been given prompt and proper attention?
- (3) In dealing with you, are all our employees courteous?
- (4) Do you desire any information concerning the various applications and use of our commodities?

Space is provided for the name and address of the consumer. Replies to these postal cards are promptly referred to the interested department, and special attention given to any requests or complaints received. A complete record of all postal cards issued, replies, complaints and requests received, are kept in the various divisions and a monthly report forwarded to the head office.

A systematic canvass of all large power and gas consumers is being conducted by the company's sales staff. The consumer is advised of the company's facilities for rendering service and of the organization it maintains for providing engineering assistance in any problems involved in the more efficient use of its commodity. The results from this canvass to date have been most satisfactory.

Appeal to Dealers—Industrial Cooperation

The appeal to dealers is generally carried on through organized societies in the industry, embracing both gas and electric. By constant contact with those organizations they are kept advised of the company's policies as affects their particular needs. The representatives of the company meet with these respective organizations from time to time for the purpose of discussing any problems which may be of mutual interest. It is felt that it is only through free discussion of such problems that the fullest measure of service will redound to the public. Most encouraging results are secured through this co-operation.

A definite tie-in is maintained with the California Electrical Cooperative Campaign in its various endeavors for educational plans, such as the traveling show window exhibit, electric homes, public school film exhibit, convenience outlet campaign, demonstrations, etc. The results of this tie-in are obviously good. Similarly a tie-in is maintained with the

Gas Appliance Society, an organization of dealers working cooperatively to effect better merchandising methods and the sale of high-class equipment. This movement is producing splendid results.

Contact is also maintained with business organizations and associations, farm bureaus, etc. This contact includes presentation of lectures and educational talks regarding the company's properties and problems. These contacts have been instrumental in acquainting a large number of consumers with the company's policy and with the organization it has provided to efficiently and adequately serve the public.

Appeal to Public

Display advertising is carried in a large number of publications in the territory served. These consist of institutional and sales advertisements, the character and nature of which, for obvious reasons, it is not necessary to mention here. Demonstrations at representative fairs and expositions are maintained in addition to those carried on continually in the various divisions of the company. These demonstrations are primarily for the purpose of effecting sales, but are designed in such a way that a message of service is conveyed to all of those attending. A very large number of consumers and the public generally is annually reached through the medium of

those demonstrations, and their effectiveness from a standpoint of both service and sales is apparent.

Educational trips to company properties has become a regular feature of company activities. A large number of consumers, representative men in all lines of business, have been afforded the opportunity of first-hand observation of the company's properties and organization.

Unquestionably the magnitude of the various company developments is, by this method, much more easily comprehended, and the visitor is almost invariably impressed with a better realization of what the public utility companies have actually accomplished, and the important part they are taking in the industrial development of the community.

This, in brief, is the outline of the Service Sales Program of the Pacific Gas and Electric Company. No illusions are harbored that it is either perfect or entirely original. Modifications and expansion have been and will continue to be made as experience may dictate. Fundamentally, however, the plan is sound and in its practical operation to date has clearly demonstrated the many advantages derived and possible of attainment in its careful and continuous application. It is rapidly proving itself a constructive instrument by which may be accomplished the main objective previously mentioned—the maximum use and value to the consumer of the commodity served.

The Cost of Operating Electric Appliances

EVERY active member of the sales force of every central station in the country and every dealer's employee knows that the most frequently asked question in connection with an electric appliance is, "What does it cost to operate?" Whether it be a range, a flat iron, a grill or a heating pad this same old bugbear arises and the sale of appliances has often been retarded because of lack of proper and intelligent explanation. This is largely due to the general lack of understanding of electricity and electrical terms. Only a small per cent of the general public knows what the rating of a device really means and probably a much smaller per cent can interpret that rating in terms of the cost of operation. Central stations have had endless complaints due to this condition and have spent many thousands of dollars in an effort to clarify the seeming mystery surrounding the operating cost of domestic energy consuming devices. Dealers have, in isolated instances, made attempts to assist their customers along this line but no uniform or concerted movement has ever been made to express operating costs in a way that could be easily assimilated by the non-electrical public.

The San Diego Consolidated Gas & Electric Company, recognizing the value of the domestic appliance load and realizing the necessity for a clear understanding of the operating cost of the more popular devices, has prepared a handy table in the form of a four-page card showing the cost of operation, based on their existing energy schedules, of the most frequently used domestic devices. This card is

supplied free of charge to all electrical dealers in quantity as desired and is distributed gratis to consumers by the dealers.

Preceded by a brief discussion of the value of the convenience outlet for the really convenient use of electrical appliances the card contains the following table of operating costs:

Apparatus	Watts	Approximate Cost in Cents Per Hour
Air heaters	600	5
Chafing dishes	600	5
Curling irons	25	1/5
Disk stoves	600	5
Dish washers	200	1 1/2
Fans (10-in.)	75	1/2
Grills	600	5
Heating pads	50	1/2
Immersion heaters	500	4
Ironing machines (gas heat).....	200	1 1/2
Irons (6-lb.)	600	5
Percolators	450	3 1/2
Samovars	450	3 1/2
Sewing machines	25	1/5
Stoves	600	5
Toasters	500	4
Vacuum cleaners	125	1
Waffle irons	500	4
Washing machines	250	2

The value of such a card has been so generally recognized by the trade that all dealers are availing themselves of the opportunity to secure a liberal supply and have shown their appreciation of this effort on the part of the central station.

Electric Range and Water Heater Survey of Pacific Northwest

THE electric range and water heater have assumed positions of prime importance in the field of current consuming devices which are commanding the attention of the western central stations as sources of increased load. Both have passed through severe experimental periods and each has demonstrated its desirability both from the standpoint of the central station and the ultimate consumer.

Consumer arguments are too numerous to mention. Manufacturers and central stations have evolved elaborate merchandising campaigns, which, although primarily educational, are achieving remarkable results. Cooking schools and demonstrations are being successfully employed to convince the housewife that electric cookery is the most modern, the most sanitary and most economical method of preparing food. Attractive rate schedules have been placed into effect which constitute an added inducement to the housewife to cook electrically. While less attention has been paid to water heating, intensive sales effort is demonstrating that this phase of domestic service possesses equal if not greater opportunities than electric cookery.

Central stations which have been passive in the past have realized the desirability of this character of load and are actively pushing sales. They have been quick to recognize its many advantages both from the standpoint of its desirable load factor, which often excels that of motors, and from the standpoint of its high diversity factor which frequently runs as high as one to ten, especially in the case of large apartment houses. The attractive rate and high revenue per kilowatt-year have been further inducements to the central station which has overlooked this opportunity for more and better business. In the case of revenue per kilowatt-year, it has been demonstrated by many western central stations that \$9.50 is a fair average annual return to expect from each kilowatt of range load installed. In many instances this has been considerably higher. This load, occurring at off-peak periods in the main, serves to fill in load valleys and to stabilize system load factors. In the case of water heaters the average annual return per kilowatt has been double that of a range. These few facts prove that here is a type of load which cannot be overlooked.

Perhaps in no district in the country have greater strides been made in developing the electric range and water heater load than in the Pacific Northwest, where at the present time there is

A questionnaire recently sent out by the Journal of Electricity shows that enormous strides have been made in the Pacific Northwest in promoting range and water heating load. A total of 3,692 ranges have been sold during the first six months of this year. There is now one range in service for every 20 domestic consumers and one water heater for every 35 consumers of this type.

approximately one range for every 20 residential consumers and one water heater for every 35 consumers of this type. A better idea of the importance of this figure can be gained when it is pointed out that at the beginning of 1923 the degree of electric range saturation in California, which is conceded to be one of the most highly electrified states in the Union,

was found to be in the proportion of but 1 to 80.

Results from a survey of the range and water heater situation in the Pacific Northwest, which has just been completed by the Journal of Electricity, show that on July 1, 1923, there were in operation on the lines of the central stations in Oregon, Washington, Idaho and Montana a total of 26,166 electric ranges and 13,436 electric water heaters. During the first six months of the current year there were sold in the territory served by these central stations 3,692 ranges and 1,781 water heaters. This is an increase of 16.4 per cent in the total number of ranges connected to the lines and 15.3 per cent in the total number of water heaters. If this sales effort is continued through the balance of the year an increase in range load of 35 per cent is to be expected, while the water heater load will easily increase 30 per cent.

Notable sales records have been established by some of the central stations. The Idaho Power Company, with a total of 5,069 ranges connected on July 1, added 356 ranges during the first half of the year. The Montana Power Company increased the number of ranges on its lines by 551 in the same period, the Portland Railway, Light & Power Company by 685, the Puget Sound Power & Light Company by 509 and the Washington Water Power Company by 641. The number of ranges on the lines of the Puget Sound Power & Light Company was increased 79 per cent in six months, while the number of water heaters served by the Portland Railway, Light & Power Company showed a 58 per cent increase in this time.

On the basis of an average of 7 kw. per range installed the estimated increase in load effected through this electric range sales activity is 25,844 kw., with an estimated annual revenue of \$250,000. Since the majority of the water heaters are served on a flat rate, no estimate of the return to be expected from this increase in load can be made.

The majority of the companies reported between 40 and 50 per cent of the electric ranges served by them as having water heaters in conjunction. A

notable record has been established by the Washington Water Power Company, for on its lines 90 per cent of the homes containing ranges also contain electric water heaters.

Practically all of the water heaters operate independently of the ranges although in a few instances heaters are installed on a double throw switch with the range. It has been the experience of some of the larger companies that it is better practice to operate the water heater on a double throw switch against a time switch on water heaters so regulated as to cut the heaters off during a four-hour peak period. The majority of the companies replied negatively. The Enterprise Electric Company, the Idaho Power Company, and the Pacific Power & Light Company reported that they would be interested in such a device.

Considerable attention is being paid to heavy duty cooking and heating equipment by the companies in the Northwest. Large installations which

Results of Electric Range and Water Heater Survey of Pacific Northwest

COMPANY	Ranges on Lines July 1, 1923	Ranges Sold First Six Months 1923	Increase Per Cent	Water Heaters July 1, 1923	Water Heaters Sold First Six Months 1923	Increase Per Cent	Percentage of Ranges with Water Heaters in Service	Operated Independ- ent or on D. T. Switch	Wattage Water Heater Recom- mended	No. Years Supplying Range and Heater Service
Bend Water, Light & Power Co.	250	12	5.0	250	12	5.0	All	Ind.	1,000	10
B. C. Electric Ry. Co., Ltd.....	1,000	129	14.8	650	80	14.0	Few	Ind.	750	7
California Oregon Power Co.....	1,054	130	14.1	757	111	17.2	61	{ 532 onDT Switch	1,000x	12
Deschutes Power Co.....	17	1	6.2	37	1	3.0	50		600	8
Enterprise Electric Co.....	91	11	13.7	47	9	23.7	50	Ind.	750	10
Idaho Power Co.....	5,069	356	7.5	4,495	458	11.4	.....	Ind.	1,000	11
Mission Range Power Co.....	36	1	2.9	16	.....	.....	50	Ind.	750	7
Montana Power Co.....	3,359	551	19.6	27	6	28.2	0.8	Ind.	600	13
Mt. States Power Co.....	426	38	10.0	192	40	26.3	45	DT Sw'ch	600	5
Northwestern Electric Co.....	881	185	23.2	155	69	80.0	16	Ind.	750	8
Pacific Power & Light Co.....	696	97	16.2	409	48	13.3	58	DT Sw'ch	1,000	13
Portland Ry. Light & Power Co...	2,550	685	36.7	509	187	58.0	17.5	{ 75% on DT Sw'ch	750	10
Puget Sound Power & Light Co...	1,153	509	79.0	463	42	10.0	40		750	11
Washington Water Power Co.....	4,576	641	16.3	3,899	575	17.3	90	DT Sw'ch with oven	750	10
Wood River Power Co.....	105	12	12.9	30	8	36.3	30	Ind.	600	7
City of Tacoma.....	2,500*	75	3.1	1,000*	30	3.0	50	Ind.	3,500	6
City of Seattle.....	2,403	551	29.8	500	105	26.6	20	Ind.	750	14
Totals.....	26,166	3,692	16.4	13,436	1,781	15.3				

*Estimated.

xSize heater depends on whether flat or metered rate is available.

all or a portion of the range. In this manner load factor is increased as is the diversity factor.

Low wattage water heaters operating continuously are recommended by the majority of the reporting companies. In the accompanying table, the heaters recommended are for a family of four with a suitably lagged tank. The most popular sizes of heaters are the 600, 750 and 1,000-watt types. These small heaters are used because of the flat rate policy which is in effect in the Northwest. In those localities where flat rates are not available, larger sized heaters are recommended.

Electric range and water heater service has been supplied by the various central stations for periods ranging from 5 to 14 years. In the case of the Montana Power Company water heater service has been supplied only for the past three years.

Companies were also asked to report whether or not their systems would benefit through the use of include bake ovens, water heaters, hotel and restaurant type ranges and other equipment are reported. Some of these follow:

The California Oregon Power Company, 4 installations of 124 kw.

The Montana Power Company, 28 installations of 597 kw.

Northwestern Electric Company, 98 bake ovens, total of 1,432 kw.

Portland Railway, Light & Power Company, 19 bake ovens, 433 kw.

City of Tacoma, 7 bakeries, 175 kw.

Mountain States Power Company, 5 bakeries, 145 kw.

Bend Water, Light & Power Company, 4 installations, 241 kw.

City of Seattle, 50 bake ovens, 1,000 kw.

A Successful Campaign for Better Store Illumination

By L. B. Gawan

Sales Department,
Utah Power & Light Company

THROUGH the cooperation of lamp manufacturers, central station and contractor-dealers, a campaign for better store illumination has been started in Salt Lake City which is achieving remarkable results. The methods which have been employed are such that they can be effectively adopted by the electrical industry in any city in the West.

WITH all the thought and attention that has been given to commercial lighting, the fact remains that the majority of stores are not adequately lighted. This may be seen any night on the streets of any city in the country. The matter has been the subject of much discussion and a great deal of thought has been given to improving commercial illumination conditions. The lamp manufacturers are

constantly striving to improve lamp efficiency and to decrease unit lighting costs. Engineers are persistently trying to provide better adaptability of equipment and to increase the effective result of illumination.

It is recognized by all concerned that poor illumination means a very definite and serious economic loss. There is a merchandising axiom, "Goods well displayed are half sold." Without properly engineered and adequate lighting goods cannot be well displayed and sales resistance is increased exactly as lighting efficiency is decreased. Volumes have been written on illumination practice and the entire industry is cooperating in an effort to improve lighting conditions.

Association is today the keynote of activity. Cooperation is rapidly coming into its own and is being recognized as the real step to successful endeavor. The electrical industry has readily grasped the importance of unity and is steadfastly proceeding along cooperative lines. Various clubs and associations for the promotion of mutual benefit and understanding are successfully pursuing their well-defined plans and are reaping returns never before thought possible. This applies particularly to lighting campaigns.

A splendid example of what can be accomplished for mutual good by cooperative effort is evidenced by a recent illumination survey campaign made effective by the Salt Lake City branch of the Association of Electragists, International. The first step was the establishment of a Lighting Service Bureau which was opened on March 15, 1923. The movement is towards the better understanding and application of the best practice in lighting.

The objects of the new bureau are: to better acquaint the user of electric service with the value of good lighting, to collect and distribute data of value to the electragist and to give to the customer a definite engineering service in the planning of new lighting or the remodeling of an existing installation.

The personnel of the bureau includes the local representative of each of the three leading lamp manufacturers who act as an advisory committee. Thus expert factory assistance is at once obtained and in a cooperative and impartial way. The various plans and specifications are prepared by the central station lighting sales department and are referred to this committee for approval and revision, if necessary. With

the latest scientific information placed at the disposal of this committee by the lamp manufacturers and derived from other sources, it is possible to carefully analyze each particular job and to offer to the customer a lighting layout that is up-to-date and which leaves nothing to be desired.

The first move of the bureau was to address a circular letter to all stores and business houses in the commercial district, announcing the opening of the bureau and offering its services on any lighting problem at hand or presented. From this mailing list of business houses was selected another list of 280 stores, including those selling drugs, dry goods, cigars, notions, gent's furnishings, women's apparel, flowers, candies, jewelry, shoes, groceries, furniture, music, rugs, books and hardware. Thus a comprehensive selection of the various industries was obtained.

A letter was sent to each store owner asking his permission to make a survey of his lighting. A copy of this letter, which was sent out on special stationery carrying the Lighting Service Bureau's name, is as follows:

"We have previously addressed you announcing the opening of the Lighting Service Bureau in Salt Lake City.

"This Bureau has been requested to furnish statistics on the present standards of lighting in Salt Lake City. These statistics have been, or are now being prepared on other cities throughout the United States.

"For the purpose of collecting data with which to prepare this information, we are asking your cooperation in allowing us to make a survey of your lighting installation. This survey will not be in the nature of an inspection of wiring and lighting equipment, but will determine the type of luminaire used, and the amount of illumination delivered. Our representative will ask your verbal permission before making this survey.

"We assure you that this survey will in no way



GREAT strides have been made in Salt Lake City in commercial illumination. A campaign in which all branches of the industry participated has brought remarkable results. The three views shown herewith depict some of the installations which have been made in the stores of the merchants of that city as a result of the campaign. At the top is the interior of The Mode, a ladies' wearing apparel establishment, where the intensity was raised from 3 to 10 foot-candles, and where show case lights and special mirror brackets were also installed. In the center are the windows of the Keith-O'Brien Company after a new installation was made. Below is a view of the interior of the same store showing the new ceiling units which were installed.

obligate you, and that you will not be asked to make any changes whatever.

"Any cooperation that you can give us in this matter will be greatly appreciated.

"Yours for Better Lighting Service."

This list was distributed by lot among the seven electragist members of the association, each member drawing forty names. Each electragist then made a survey of the stores allotted to him in order to analyze carefully the specific problem of each store. A foot-candle meter and special field note forms were used, which forms permitted of tabulation of all the data necessary for an intelligent and careful analysis of the information obtained. From the information furnished by these field notes the bureau made up a report of the situation and wrote the store owner showing the actual condition of his lighting installation as compared with accepted standards. Comments were instructive in character and were made under the following headings: Illumination Values, Arrangement of Lighting Units, Lamps and Reflecting Equipment, Maintenance, and Summary. Attached to this report was a letter addressed to the attention of the person interviewed at the time the field notes were taken. He was thanked for his cooperation in allowing the survey to be made, and the value of good lighting as an economic factor in selling his merchandise was stressed. The services of the Bureau were offered, either from the standpoint of better utilization of the lighting equipment he already has installed, or in the design of a new lighting system.

The improved lighting in those stores where changes were made has resulted most satisfactorily, for working conditions have been improved, merchandise is better displayed and more advantageously sold and store owners are well pleased. However, from this one series of letters, the cumulative value cannot be estimated and the necessity for a follow-up campaign is recognized. There are on hand several plans and specifications which have been prepared by the Bureau in this campaign on which the work will, no doubt, be done this fall. Many merchants who have not remodeled their lighting systems, have learned, through this campaign, that their lighting is not up-to-date, that it is reacting to their disadvantage and they consequently can be more easily approached when business conditions will permit of the investment.

The second step of the campaign was a more concentrated effort to sell show window lighting. A portable display window was constructed, equipped with spot and color lighting effects. The aid of the local advertising club was solicited and readily obtained and under its auspices a luncheon meeting was held at which a demonstration of the window display was given.

Sixty merchants and advertising men attended and the display was enthusiastically received. For a period of four weeks merchants were invited to use the windows of the Utah Power & Light Company to

display their merchandise. Each merchant was allowed the use of the window for three days and the exhibitor trimmed the window according to his own ideas, except for the lighting technic which was handled by the Bureau. The superior attractiveness of a correctly lighted window was well demonstrated and the color lighting effects were changed to harmonize with each new display by simply changing the color screens and the location of portable spot and floor units. Circular letters were also sent to the merchants stressing the value of color lighting as a sales maker. A great deal of interest was shown in this phase of the campaign and the windows never failed to draw a crowd.

Salt Lake City now has a number of model display window lighting installations, and there are a number of others already planned, or under construction, as a result of these demonstrations. The campaign will be continued indefinitely and increasing results are confidently expected, particularly as advantage is taken of the scientific advances in illumination practice.

China Offers Profitable Fan Market

DUE to the long hot summers that are prevalent in Hongkong and the immediate vicinity, an excellent market for electric fans is present there, according to a report made to the United States Department of Commerce by Larcey Webber, the Hongkong consul. Mr. Webber reports that fans are a necessary part of the equipment in offices and homes alike and that the annual sales in south China are estimated to be about seven thousand oscillating fans and about one thousand of the ceiling type. Approximately 70 per cent of these fans are supplied by the manufacturers of the United States while British firms supply 20 per cent of the total. The remainder come from Italy, Germany and other European countries.

Oscillating fans are usually of the 12 and 16-in. types, and during the present year there has been a slight demand for the 10-in. fans. Between 30 and 40 per cent of the fans are designed for 200 volts, the remainder being constructed for 100-volt operation. Ceiling fans are usually of the 56-in. size and those for use in Hongkong are designed for 200-volt circuits, while those in the surrounding cities operate at 100 volts.

Users and retail dealers generally make their purchases from the Hongkong branch houses of foreign firms, which as a rule, carry ample stocks. Sales are usually made on the basis of cash with 30 days. Hongkong being a free port, no duty is charged on this class of goods, but there is a 5 per cent ad valorem tax on all goods entering the Republic of China.

The sale of foreign fans is on the increase and dealers report that quotations received from foreign manufacturers vary from 20 to 60 per cent below those of the American makes.

Selling Electric Ranges in Southern California

FOR several years the entire electrical industry, whenever it had something to sell, made its approach to the men and tried to sell them the idea of increased application. This applied to any device whatsoever, regardless of its nature or use, whether commercial or domestic and regardless of whether the man knew its value as working equipment for that particular application. This was all very well as regards motors and industrial apparatus but did not work out in the case of domestic appliances and resulted in impedance to the sale of this type of equipment. No man would permit his wife to tell him what kind of equipment he should have in his office or factory, what kind of machinery to buy and how to run it. Yet men for some years were looked to to decide what kind of machinery and equipment the housewives should have for running their businesses. An anomaly, to be sure; a paradox, indeed.

When the Southern California Edison Company decided to stage its recent electric range and water heater campaign the men who formulated the plans, Harry C. Rice, chief appliance sales agent, and R. E. Smith, advertising manager, wisely decided to give due recognition to the person who would actually use or be most concerned in the use of the equipment, namely, the housewife, and all the campaign material was directed at her. The approach was in every case made to the woman, and her viewpoint shaped the entire publicity program and effort. The results of this move are best written in the sales volume which accrued, the movement of electric ranges and water heaters exceeding that of any other similar campaign. This is particularly significant as the campaign was, primarily, by mail and newspaper with personal follow-up of replies to letters.

The entire campaign was carried out in cooperation with the various manufacturers whose equipment was used in the special offer, the manufacturers offering such assistance as demonstrating service and the sales effort of their local representatives. Manufacturers' representatives worked on a broad-vision basis and talked the general idea of domestic electrification first, with a follow-up of the merits of their particular equipment as a secondary part of their effort. In this way a very fair-minded presentation of the subject was given to the prospect and the usual competitive confusion was avoided. Proper recognition of the division and district manager was given in that the campaign in each district was under the direct personal charge of the manager of that dis-

THE Southern California Edison Company has staged several electric range and water heater sales campaigns and has evolved a method which brought real results. The article gives a full description of a plan which may well be followed by other central stations which are looking for increased load of attractive character and revenue.

trict and only those consumer names were used which he selected from his registers as being available and desirable prospects for the purposes of the campaign.

The campaign was divided into the following general sections: Letter advertising; newspaper advertising; general publicity; demonstrations at district

offices; sales effort by company and factory representatives.

Inasmuch as it was desired to arouse the prospect's greatest interest at the first point of contact, which was the letter transmitted by the district manager, this letter was made to appeal strongly to the housewife by inviting her to witness the practical operation of electric ranges at the company's district office. The mention of the fact that the range would be operated by a representative of the factory was tied in with a suggestion of the possibilities of the use of automatic control. These two features contained strong appeal and resulted in extremely satisfactory response from those consumers solicited. Many women were attracted by the desire for contact with a trained domestic science expert and others by the desire for new recipes, additional information, etc. The novelty of cooking being safely done under automatic control also prompted the attendance of others. A total of ten thousand letters was forwarded during the progress of the campaign and the mailing of these letters was so spaced as to permit of the best use of the services of the outside employees. For example, letters were sent out first from four districts on the same day. These were followed at intervals of from one to two weeks by letters from each of eighteen districts at different points of the company's system. This allowed the factory demonstrator and salesmen to so arrange their work that they could serve several districts in turn.

Two separate letters were prepared, covering two different makes of ranges, but reading so far as possible, similarly. These letters constituted a courteous and cordial invitation to meet the factory demonstrator and also contained a very short mention of the possibilities of automatic operation. These letters were accompanied or preceded by a considerable amount of newspaper advertising space, allotment varying from 20 to 60 column inches, according to the size of the city and the circulation of the paper. Three advertisements appeared in the daily newspapers during the week preceding the demonstration, which was held at the company's local office,

Your Biggest Task is Cooking

THERE are many, many things to be done about the house—washing, ironing, sweeping, dusting, sewing, washing dishes—but the greatest task of all is cooking. The average woman spends twenty-five hours a week preparing the family meals.

And cooking is by far the most important task, too, for upon it depend the health and content of the whole family. Properly cooked food is the first household necessity. So the sincere housewife gives it her most careful consideration. Under old methods her attention and presence were demanded every minute during the preparation of a meal.

She had to see that the heat was properly regulated; that smoke was not clouding the walls; that nothing burned or boiled over; that there was plenty of water on the vegetables; that the roast was properly basted. Truly it was almost drudgery. The approach of meal time was justly dreaded.

But it is a different story in the modern home. Electric cooking has made life worth while for the housewife. She does not have to stand over a hot stove all day—she is free from worry, care and constant attention. It is no longer a task but a pleasure to cook, so quickly, so easily and so well can it be done.

THE MODERN WAY IS THE ELECTRIC WAY.

RECALL, for a moment, the important part electricity has played in making housekeeping easier for the housewife. The electric iron has replaced the old, hot, heavy, slow flatiron. The vacuum cleaner saves back-breaking hours of sweeping and dusting. The electric washer saves a tired back and worn-out arms and hands. Similar relief has been brought through the electric dishwasher and the electrically driven sewing machine. In every case the work is done much better.

But how much greater is the improvement electric cooking brings! Let it lighten your greatest task, too. Think what it will mean to you to cook in a cool, fumeless kitchen with no soot, smoke and dirt; free from uncertain, glaring flames, which cannot be definitely regulated; your heat immediately and constantly obedient to you.

In broiling with electricity, the heat scars the meat, closing the

pores, and retaining all the volatile oils—the same is true of roasting. You do not have to stand over a hot oven basting a roast. Basting is unnecessary. You can regulate your heat just as you wish it and thus avoid burning.

And think of the difference in your kitchenware. Your utensils never come into contact with smoke or flame. Consequently, you have no sooty, smoked pots, pans and skillets to labor over. You can even set your heat and let your dinner cook while you are out.

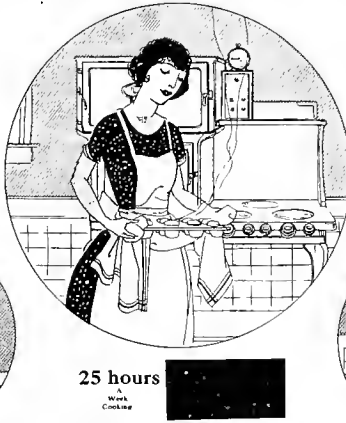
Because of these tremendous advantages, the Southern California Edison Company is striving to modernize homes by recommending electric cooking. Every housewife who loves her home and wants to do things the best she possibly can, will be interested in Electric Cooking. Further information will be found on the following page.



The average housewife spends fifteen hours a week washing dishes, and it is not a heavy task at all. Still, a great big percentage of the time of the housewife is spent in this way.



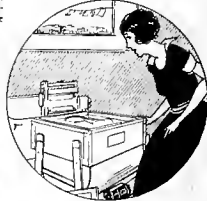
10 hours



25 hours



5 hours



4 hours

15 hours

ELECTRIC COOKING
Saves TIME
and LABOR

ELECTRIC cooking is an assurance of better and more healthful food for all the family, for electric cooking means much more than merely cooking on an electric range. The two vital factors upon which successful cooking depends are heat and temperature.

COOKING A KNOWN QUANTITY

Yesterday, good cooking was the product of good genes, work and favorable conditions, combined with unceasing care in stirring, basting and shifting food. Cakes fell, contents went watery, roasts were over done or under done, bread was a success or failure, just as the fire was good or bad. But today the housewife has the electric range, a modern scientific achievement that puts results positively under her control.

ABSOLUTE CONTROL

Each heating unit on an electric range is controlled by a switch which can be turned to give any one of three degrees of heat—full, medium or low. Medium is just one-half as hot as full, and low is one-quarter as hot as full. The difference in degrees is absolute. It never varies or fluctuates. Heat level and proper cooking are constantly under absolute control. You do not need to watch it—all you have to do is place it.

never dried out, but is evenly cooked, thoroughly cooked and evenly browned.

PERFECT BROILING

And as for broiling, if you have never tasted meat broiled on an electric range you do not know what the taste of real broiled meat is. It is not smoked, burned, dried out or charred. The strong, white-hot heat sears it over at once, closing all the pores and then cooks it evenly, retaining all the flavor and browning it perfectly on all sides.

BETTER FOOD

And no one sees why food cooked on an electric range is better cooked, more tasty and more wholesome. Electric cooking enables any woman to prepare a meal that will give the greatest satisfaction and satisfaction to all the family.

Electric Cooking
is NOT
Expensive

SOUTHERN CALIFORNIA EDISON COMPANY

Visalia, California, May 17, 1923.

Dear Madam:

It is with real pleasure that we tell you of the arrangements which have just been completed for the demonstration of the latest product of the electrical engineer's skill—the Hospital-Kitchen Super-Automatic Range.

Into this range have been put the results of years of experience and the product is one that cannot be surpassed. Imagine this range in your kitchen. You may prepare a dinner and place it in the oven in the morning—then set the automatic device, and go away for the rest of the day. When you return at six or seven that evening, open the oven door and find a meal perfectly cooked and ready to serve.

We are fortunate in securing the services of Mrs. Mabel M. Hittner, who will demonstrate this range daily during the week of May 21st to 25th, at our office. The demonstrations will start at ten in the morning and continue until four in the afternoon. We urge you to meet Mrs. Hittner while she is here and learn what may now be done with an electric range. You should do this even though you may not intend to buy a new range at the present time.

Very truly yours,

SOUTHERN CALIFORNIA EDISON COMPANY

There are also other models to select from, designed to meet every requirement and every purse.

Name _____
Address _____
City _____ State _____
Date _____

Of course you want to know the cost of

Better Electric Cooking

THE PRICE OF THE RANGE IS		
Model	Case	Price
Model A	Case B	Price C
Model D	Case E	Price F

Terms—25% with order, balance in six equal monthly payments.

THE SPECIAL COOKING RATE IS _____

Electricity for cooking does not cost more than for other uses. The average monthly charge for 4000 Edison consumes using electric range is \$4.00.

SOUTHERN CALIFORNIA EDISON COMPANY

The Southern California Edison Company sells and recommends these well-known types of guaranteed Electric Ranges

IN answer to an insistent demand, on the part of our consumers, for electric ranges, the Southern California Edison Company has carefully investigated electric ranges being sold today. Consequently, the Company is ready to make well-adviced recommendations and to assist those interested in electric cooking in securing the range best suited to their particular needs.

The Company will also supervise the installation.

On this page are a few illustrations of ranges which embody all the latest developments in the science of cooking with electricity.

While you can get a general idea of them from the illustrations shown here, still you cannot fully appreciate the construction, the finish, the attractiveness of these ranges without seeing them. You cannot realize how perfectly they work and what an advantage they are unless you watch them in operation.

Ranges are now on display at our local office. Without any obligation to yourself whatever, we shall be pleased to show you exactly how they work, and we invite you to call at our display rooms at your pleasure.

Meanwhile, if you wish any further information, we shall be pleased to answer any questions you may wish to ask.



Designed to meet the needs of the modern home, this range is especially adapted for apartment houses, where there is no space for a large range.



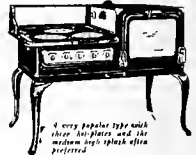
In auto-range type, built into lower and small space, the better for cooking vegetables, primarily for the type of home as the family use.



Especially useful in small houses, apartment houses and hotels, where space is at a premium.



A compact range with built-in oven, ideal for small homes and apartments.



A very popular type with electric broiler and the modern type electric broiler.



A representative type that can be set up on a small or large kitchen.

These sales letters containing a direct appeal to the housewife in terms of lightened work and improved results were used by the Southern California Edison Company in its recent electric range sales campaign and were supplemented by folders telling the merits of electric cookery.

and one similar advertisement was run in weekly papers announcing the time and place of the demonstration. In addition to this form of advertising, banners were placed on the cars of the company drawing attention to the location and date of the local demonstration. Salesmen were on hand at each demonstration to explain operation of equipment and rates and to secure the names and addresses of those whose interest warranted follow-up. This general plan was followed out in nearly every district of the company and the number of letters mailed varied from 500 to 2,500, according to local conditions and circumstances. Each letter bore the local district manager's signature, thereby providing a close personal interest factor.

Numerous circulars were prepared, explaining the advantages of electricity for cooking; these circulars being built around the phrase: "Cook with electricity—the sensible way—acknowledged the most efficient means of food preparation." Each circular had a distinctive title and the contents of each dealt more fully with the title subject. Some of the titles employed were "Electric Cooking is NOT Expensive," "Electric Cooking Saves Time and Labor," and "Electric Cooking Means Better Cooking," and these circulars were enclosed with each letter transmitted.

An original and valuable feature of the campaign was the use of a printed form for quotation purposes. This form allowed space for quoting on four different models or items and showed the cash

and term prices as well as the initial payment and the monthly installments. It also contained provision for quoting on rates for cooking and, as the form was made out in duplicate, one copy being sent to the district office and one copy given to the prospect, it permitted of an accurate record of a salesman's quotations.

Early in the year before the start of the campaign, the sales department established for itself a bogey of 150,000 hp. new connected load for the year and a total of 2,000 electric range and 1,500 electric water heater sales. That this quota will be reached is indicated by the results of the year to date. During the first six months of this year a total of 100,000 hp. of new connected load was added to the system and the rate of sale of appliances indicated that the bogey would easily be made.

A very interesting feature of the campaign results was the sale of water heaters. It had been the company's experience that the percentage of water heater sales as compared with range sales normally ran about 25 per cent. During this campaign, however, due to intensive effort and to a full explanation of the value of electricity for heating water and a further exposition of the possibility of automatic control and of continuous hot water, the per cent of water heater sales mounted to between 40 and 50 per cent of ranges sold during the campaign. This business was taken on without additional expense and provides a continuing revenue which is very attractive.

Announcement Extraordinary

Through special arrangements with the Edison Electric Appliance Company of Ontario we have secured the services of Miss B. E. Galvin, Home Economist, who will demonstrate the

Hotpoint - Hughes Super-Automatic Electric Range

Commencing
April 23rd
Every Day
From
10 a.m. to 4 p.m.
At Our
Office

This latest marvel of the electrical engineer's skill is just what its name implies—SUPER-AUTOMATIC. The oven may be controlled precisely as to TIME AND TEMPERATURE by automatic devices. You may prepare your dinner in the morning, put it in the oven, take the car and spend the day at your cousin's home. When you return at six or seven that evening, open the oven and find a perfectly cooked meal, ready to serve.

Special Introductory
Prices and Terms

Southern California Edison Company
585 West Second Street Phone 115
POMONA

Electric Range DEMONSTRATION

To the Happy Housewife:

Due to the success of the former range demonstration held in the office last week ago, we are fortunate in having Miss B. E. Galvin, Home Economist, of the Edison Electric Appliance Company, who will give demonstrations in the all electric kitchen at the Edison Club opposite Theater from 9 until 4:30 on the 14th.

HOTPOINT-HUGHES SUPER-AUTOMATIC "America's Finest Electric Range"

The first that everyone in the San Joaquin Valley is talking about, with "Time" and "Temperature" control.

Electric Cooking
IS NOT
EXPENSIVE

for—
COOKING
FAST
SAVING
KITCHEN CLEANLINESS
BETTER FOOD
LESS WORK
MORE TIME SAVED
PERFECT RESULTS

A MODEL FOR EVERY KITCHEN
A PRICE TO SUIT EVERY POCKETBOOK

Southern California
Edison Company
Edison Club Rooms DELANO, CALIF.

An Electric Range In Every Kitchen

DAILY DEMONSTRATIONS

from

10:00 TO 4:00

Commencing Wednesday, July 25

—We are pleased to announce that arrangements have been made for a demonstration in Redondo of the latest product of the engineers' skill—

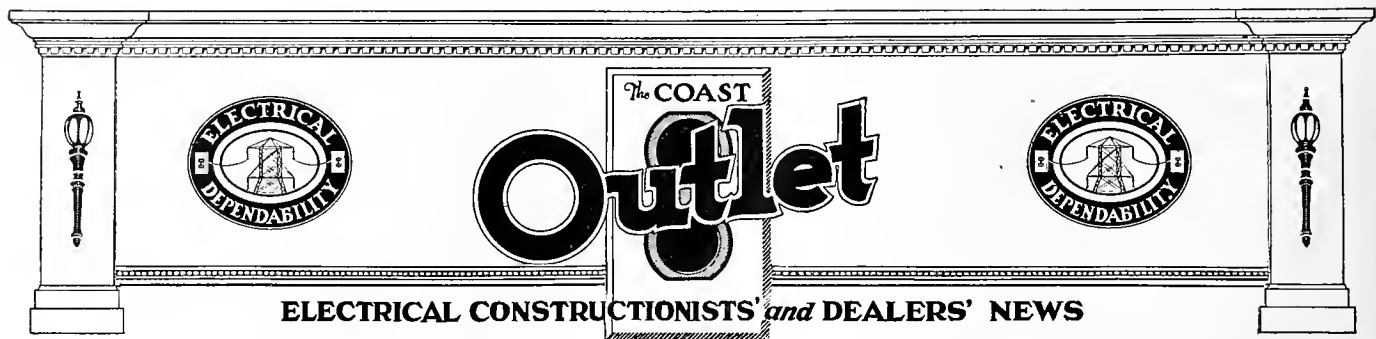
The Hotpoint-Hughes Super-Automatic Electric Ranges

—Come in and inspect this range at your leisure. Learn what electricity can do for you in your kitchen. Even if you do not plan to buy a new range at this time, it will pay you to investigate this marvelous device.

THE COST IS SURPRISINGLY LOW

Especially low combination lighting and cooking rates

Southern California Edison Co.
Redondo



Electrical Construction

By E. Earl Browne

THE trend of building has changed materially in recent years. It was formerly the custom to erect structures arbitrarily designed, without thought as to the class of tenants which might occupy the premises and without special consideration of arrangements for their convenience and for the particular needs of their individual businesses. Very frequently this worked a hardship in the way of inconvenience or of expensive alterations necessary to make the quarters fit for the needs of the occupant. This building practice, however, has now passed and buildings are erected with the thought in mind of adaptability to any one of several different commercial or industrial uses.

In the electrical layout for a building to be used for office or loft purposes, a knowledge of the class of tenants to be especially solicited as occupants is of primary importance as on that depends the extent of various classes of service. Thus if it is designed as a dentists' office building, special pedes-

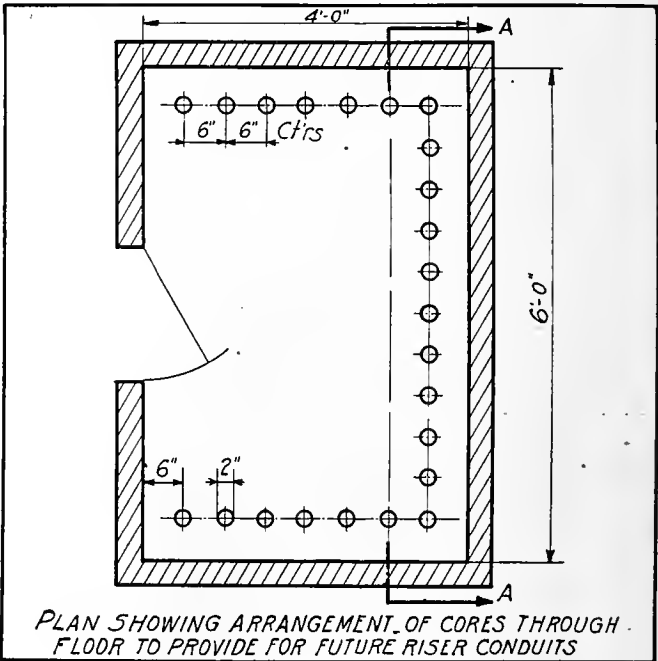


Fig. 1.

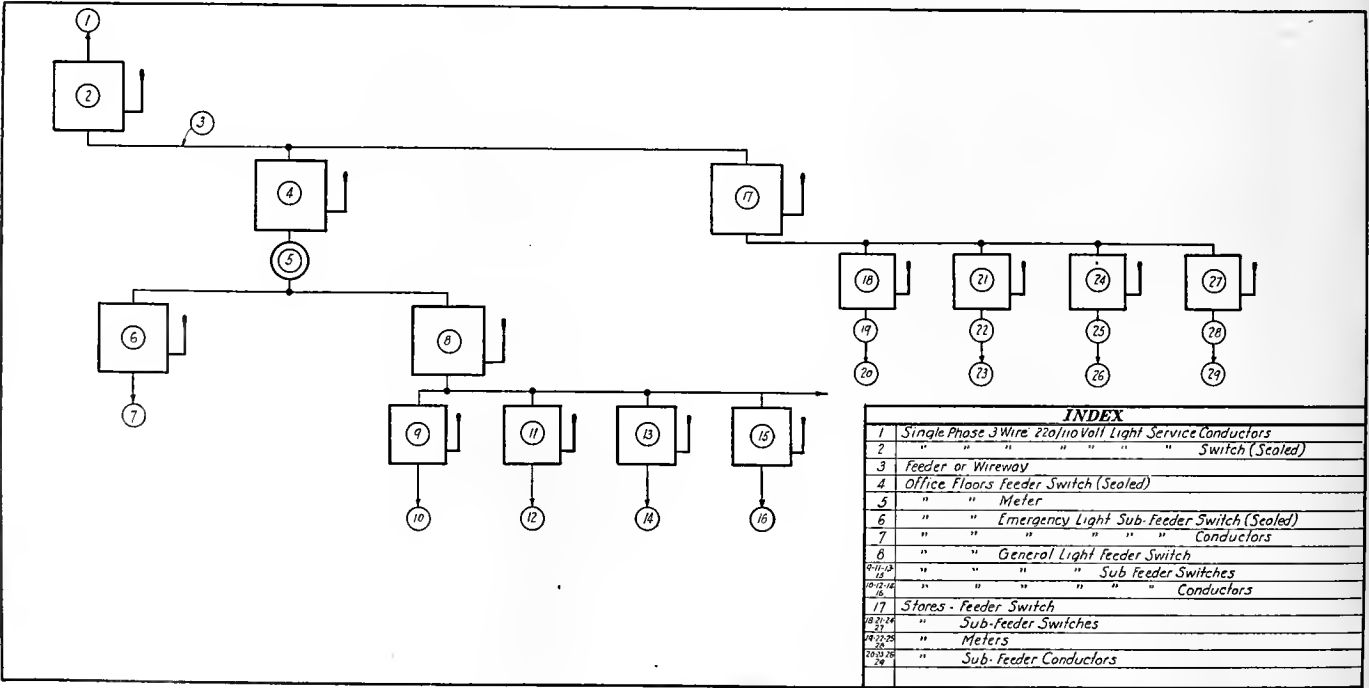


Fig. 3.

tal outlets for power and nurses' call are necessary, whereas a building used for doctors and surgeons only requires special alternating current and direct current convenience outlets and special sub-feeders for X-ray, electro-therapy, etc., must be provided. If a building is to be used for light manufacturing, such as tailors, on the upper floors, it is, of course, necessary to provide riser shafts for a considerable power load which would probably be all alternating current, but if on the other hand printers were to rent these lofts they would require additional service for direct current motors on such machines as required speed control.

It is therefore apparent that to anticipate all these future needs is not humanly possible and the best that sometimes can be done is to provide for

future risers from the basement in the form of closets on each floor with cores through the floors to provide for the easy installation of conduits as required from time to time, as per Figs. 1 and 2. These consumers of a considerable amount of power will be metered at some central location in the basement which requires that some consideration be given to the meter board arrangement so that these sub-feeders and circuits may in the future have the safety switches and meter loops installed in a neat manner and with minimum expense. This means that services and distribution will be required as follows:

Lighting and convenience outlets will be served by 110-220-volt, 3-wire, single-phase; all general power will be 220 volts, 3-phase, 3-wire for pumps, elevators, air heaters, water heaters, etc., and direct current at 110-220 volts, 3-wire, must be provided through central station service, if procurable, or, if not, from a motor-generator set on the premises.

A general scheme of connections to provide the usual metering arrangement in the modern store and office building, keeping in mind the requirements as to where the fire departments insist "sealed" switches be placed in order to eliminate any chance of emergency light and passenger elevator circuits being opened, is given in Figs. 3 and 4. These diagrams contemplate the metering of all general and emergency lights for offices, stairs and corridors through one meter, thereby saving the owner a considerable sum over a period of years by the investment of a nominal amount in the extra switch No. 4, Fig. 3. This same arrangement applies to the 3-phase power to be paid for by the owner of the building as by referring to Fig. 4, the extra switch No. 4 is the only additional piece of apparatus necessary to accomplish the desired results.

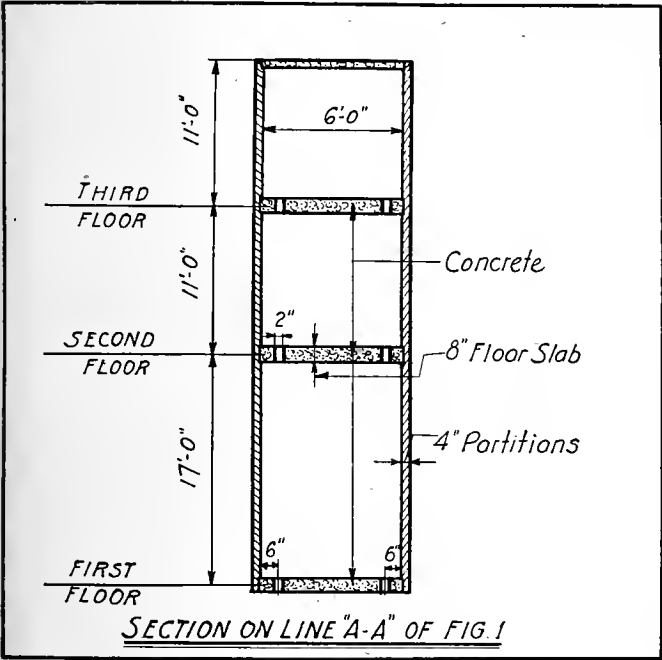


Fig. 2.

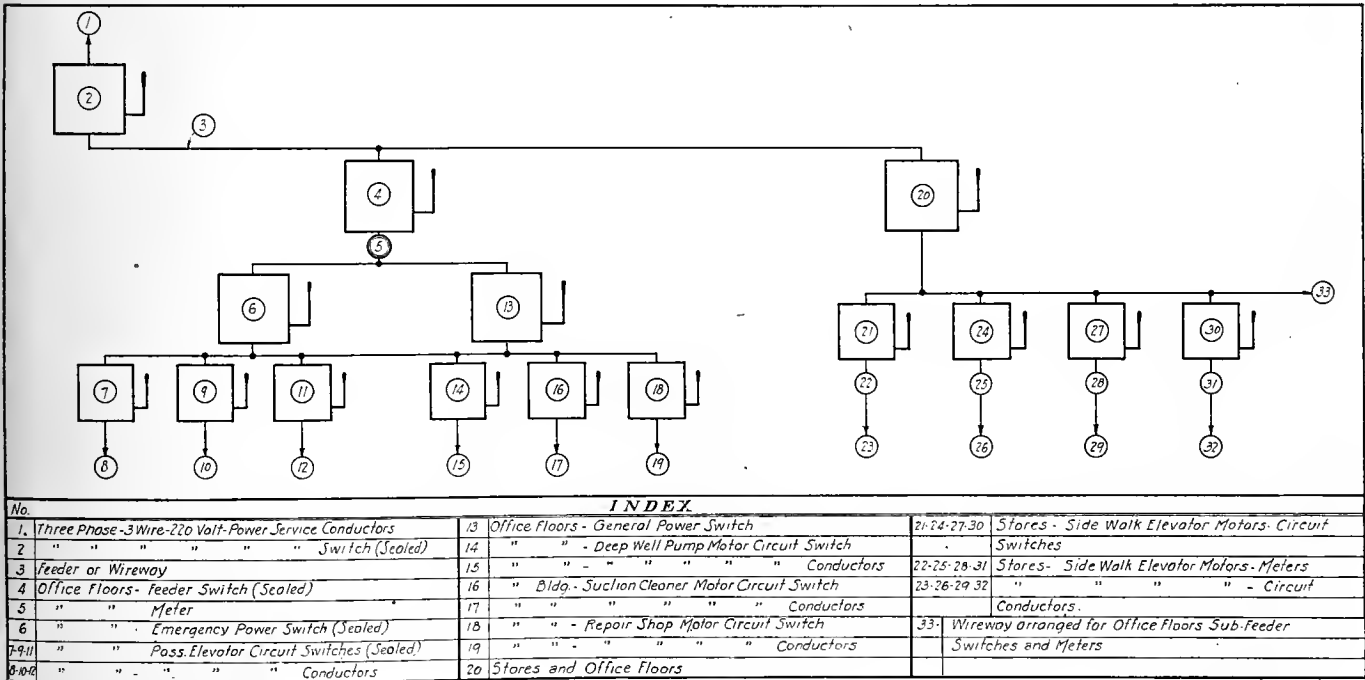
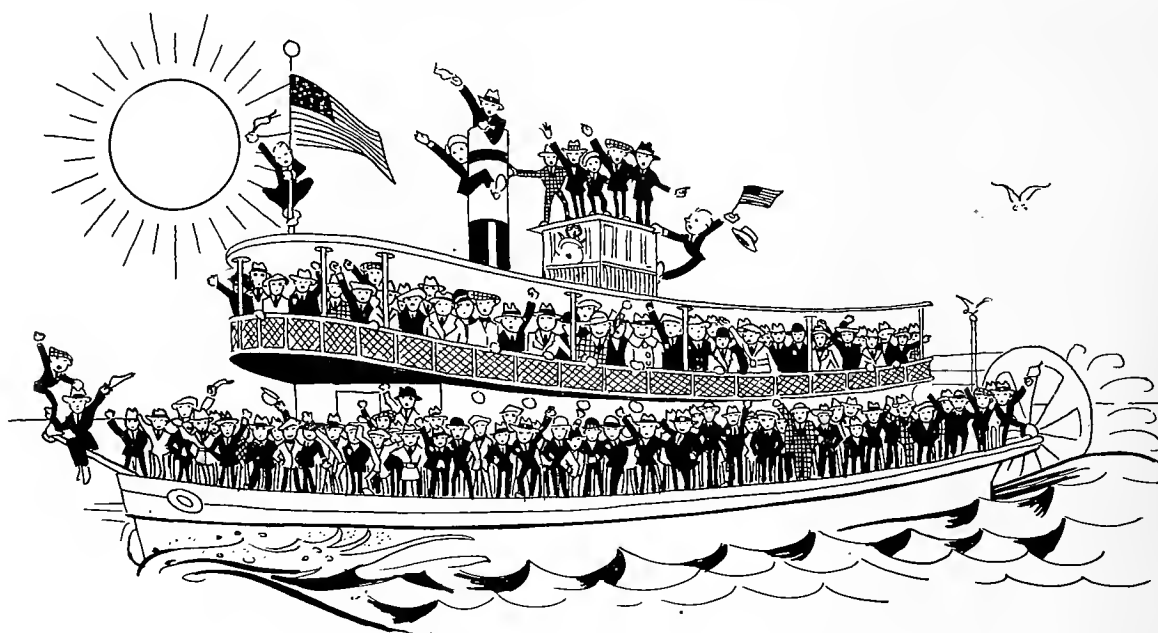


Fig. 4.



CALIFORNIA STATE ASSOCIATION OF ELECTRICAL CONTRACTORS AND DEALERS MEETING DATE CHANGED

Owing to the fact that there will be several other conventions at Sacramento on Oct. 13 and for that reason it will be impossible to secure adequate transportation and other accommodations, the meeting date of the

CALIFORNIA STATE ASSOCIATION OF ELECTRICAL CONTRACTORS AND DEALERS has been changed from Oct. 13, as announced in the Sept. 15 issue of the Journal of Electricity, to

OCTOBER 27

The Southern Pacific steamer "Navajo" has been secured for the new date and arrangements will be as previously announced except that the party will leave San Francisco on Friday evening, Oct. 26, at six o'clock p.m.

REMEMBER!

FRIDAY, Oct. 26, 1923, SIX O'CLOCK P.M., PIER 5

Denver League Plans to Display Second Electric Home

Another electric home will be displayed in Denver, Colo., some time during the month of October, if the plans of the Electrical Cooperative League in that city materialize. Negotiations are under way with a residence construction firm for the exhibition of a five-room bungalow on a prominent boulevard. According to League officials, the house is admirably designed for exhibition purposes and will serve in contrast to the first electric home exhibited last year where a record attendance for cities of that size was hung up.

The permanent commercial-industrial lighting exhibit promised by the League several months ago is likewise rapidly taking form. Design of the exhibit has been completed after consultation with the prominent lamp companies and equipment is now being arranged, according to O. L. Mackell, chairman of the Denver organization.

Special emphasis on proper lighting is being given to architects in Denver by the field representatives of the League, as a forerunner to the lighting exhibit which will include as supplementary features, a course of lectures to architects, builders, storekeepers and plant executives. Proper window lighting will be stressed in conjunction with the exhibit through the medium of a portable display window which later will be sent out into the state, providing the electrical interests will support the program of extension.

These activities, along with others contemplated for the present year by

the Denver organization, are explained in the annual report which has just been published.

R. G. Nathan, formerly a partner in the Crooks-Nathan Household Appliance Company of Denver, is now associated with the Premier Electric Company of that city as sales manager. In his new position he will be associated with John Van Dyk, one of the pioneer electrical appliance men of the Rocky Mountain region.



George Gray never finds himself too busy to take time for the activities of the California State Association of Electrical Contractors and Dealers. He always manages to have a good time and to throw a few good ideas as well as to pitch horse shoes.

Hanford Building to Have Modern Electrical Installation

Oscar F. Abbott of Hanford, Calif., is completing an electrical installation in the "Center of Wealth" building in Hanford that is extremely modern. When completed the "Center of Wealth" will be the most modern building in this section of the San Joaquin Valley.

This building will include nine stores and thirty-five offices. A complete conduit installation is being made for both electric lighting and heating. Each office will be on a separate heating circuit and, in addition, the wiring is so laid out that when a tenant takes more than one office, the circuits for all offices in the suite may be combined into one. This will give unit control for the entire suite. Current will be supplied to the building through a master meter and will be sub-metered to each tenant.

Electric ranges are to be installed in all the apartments in the \$250,000 building to be constructed by the Commodore Investment Company of Portland, Ore. The apartment house will be on the southwest corner of Twentieth and Glisan Streets, and was planned by John H. Grant. There will be four stories and basement, 100 x 150 ft., reinforced concrete, trimmed with cast stone, containing 49 apartments of three, four and five rooms each.

Robert L. Eltringham, of San Francisco, manager of the California Electrical Cooperative Campaign, was a recent Los Angeles visitor.



It is no effort at all for "Ray" Alvord to smile. Smiling is the "fondest thing he is of." "Miles of smiles" is his motto and his genial nature exerts its influence throughout the San Francisco office of the General Electric Company.

Plug Contact Standardization Increases Appliance Sales

One of the stumbling blocks of the electrical industry in the past has been the lack of standardization, particularly in small attachment parts. Each manufacturer, seeking individuality in his line of appliances for one reason or another, has brought forth a different type of connecting plug or a different socket. This has resulted in such endless confusion and such hardship to the consumer that it has, no doubt, reacted to the disadvantage of the appliance business in general.

With this thought in mind several manufacturers in conference decided to adopt the split, or separable, plug with parallel contacts for standard equipment. This is a decided step forward as it simplifies greatly the matter of wiring and increases the potential serviceability of lamp socket devices with a corresponding increase in demand for such appliances. It has also resulted in increased demand for the convenience outlet which can now be supplied to serve any standard appliance plug. What this means to the entire industry can hardly be estimated. Every branch of the trade will benefit and power companies will receive increased revenue, at attractive rates, from the increased use of appliances.

The accompanying illustration shows the advance which has been made as the result of standardization in the period since 1918. A careful inspection of this photograph will show the endless confusion which presented itself to every consumer when he wanted to buy a plug or outlet and the stock duplication required of every jobber and dealer. As compared with the conditions of 1918, when an intelligent selection was next to impossible, note the simplicity of choosing a convenience outlet or an attachment plug since standardization has taken place.

In response to a resolution by the United States House of Representatives, the Federal Trade Commission is making an investigation of the radio industry. The purpose of the investigation is to gain information regarding the patent rights of manufacturers, merchandising conditions prevailing, as well as manufacturing and general conditions regarding the transmission and reception of radio messages. The field work in connection with this investigation is practically complete.

James Milroy, one of the partners of the M & H Electric Company, contractors, of Denver, is recovering in that city from an operation for appendicitis.



Harry Garbutt does other things—well—beside selling Westinghouse products. Here he is at Donner Lake knitting a jacket—perhaps for entry into the World's Prize Knitting Contest.

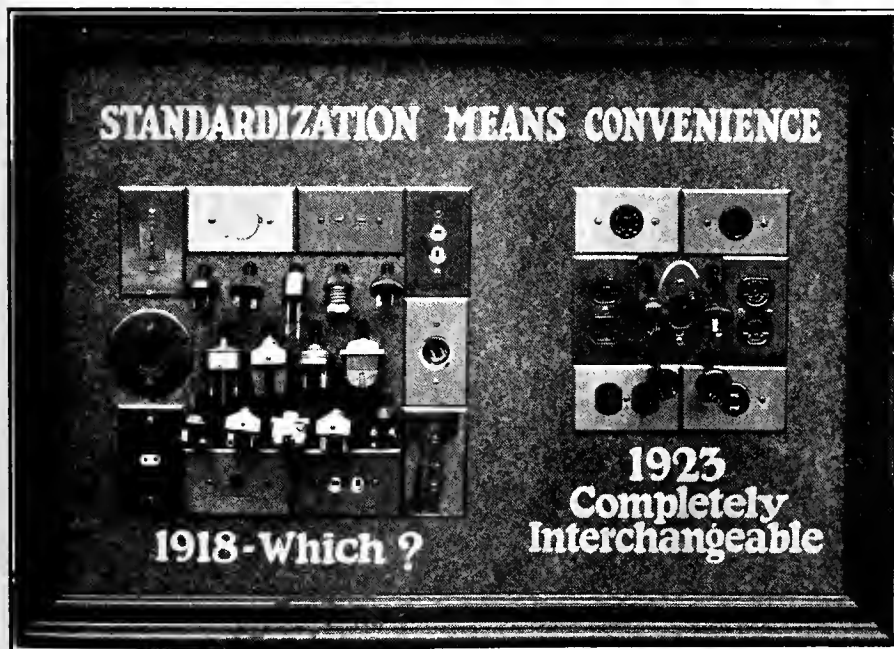
Increase Electric Installation at Incubator Plants

The work of rebuilding the incubator plant of the Must Hatch Incubator Company at Petaluma, Calif., is being rushed to completion. The plant was destroyed by fire some months ago. The hatchery is being completely electrified and when the installation is complete this plant will be one of the largest completely electrified hatcheries in the world. The connected load will be 500 kw.

The Sales Incubator Company, also a Petaluma concern, is increasing its plant capacity 1,000 per cent and will have a connected load of 115 kw. The combined capacity of these two plants will be approximately seven hundred thousand chicks every twenty-two days.

The Oregon State Penitentiary at Salem, Ore., is to generate its own electric light energy instead of buying it as has been done for many years. If this is successful it is possible that later electric lights to the state hospital and other institutions may be furnished from the prison. The new lighting arrangements at the prison are to be brought about by the installation of a 250-hp. water wheel, which will take the place of a 90-hp. wheel that has been in service for 30 years.

H. H. Allison, formerly illumination salesman at Sacramento, Calif., for the Pacific Gas & Electric Company, has been appointed illumination engineer with headquarters at the San Francisco office of the company.



Results which have been achieved since 1918 in standardization of plug contacts and convenience outlet terminals. This has simplified the jobber and dealer stock problem and has increased the sale of convenience outlets.

JOBBER, DEALER AND SALES AGENT



Prize winners and their invited guests at the base of the Balanced Rock. This rock formed the setting for the essays which were written by the persons who entered the contest in Denver.

Putting Local Interest into the Essay Contest

Balanced Rock in Vicinity of Denver Increases Interest in Theme Contest on "Value of Balance in an Iron"

One of the most difficult problems to be solved in connection with any sort of contest, in which the public is to enter, is that of making the contest of such a nature that it will have a local appeal. Contests that contractor-dealers are interested in must of course be adaptable to the locality in which the firm is located and to increase the pulling power of the contest local conditions must be considered.

In introducing its new electric iron in Denver, Colo., the Westinghouse Electric & Manufacturing Company recently staged a contest which was particularly well suited to the city. Less than fifty miles from Denver, in the Garden of the Gods, there is the famous Balanced Rock. This huge rock is left standing away from the rest of the formation in such a manner that it appears to be balanced on a small portion of its base. Citizens of Denver and vicinity are of course well acquainted with this condition.

All advertising that was used in connection with the new iron featured the Balanced Rock, as it was the purpose of the copy to show that the new Westinghouse iron possessed balance. To further increase the interest in the iron, W. E. Barrett, the company publicity man in the Denver office, planned an essay contest on the subject, "Value of Balance in an Iron." The winners in the contest were to be given one-day trips to the scenic spot where the Balanced Rock was located.

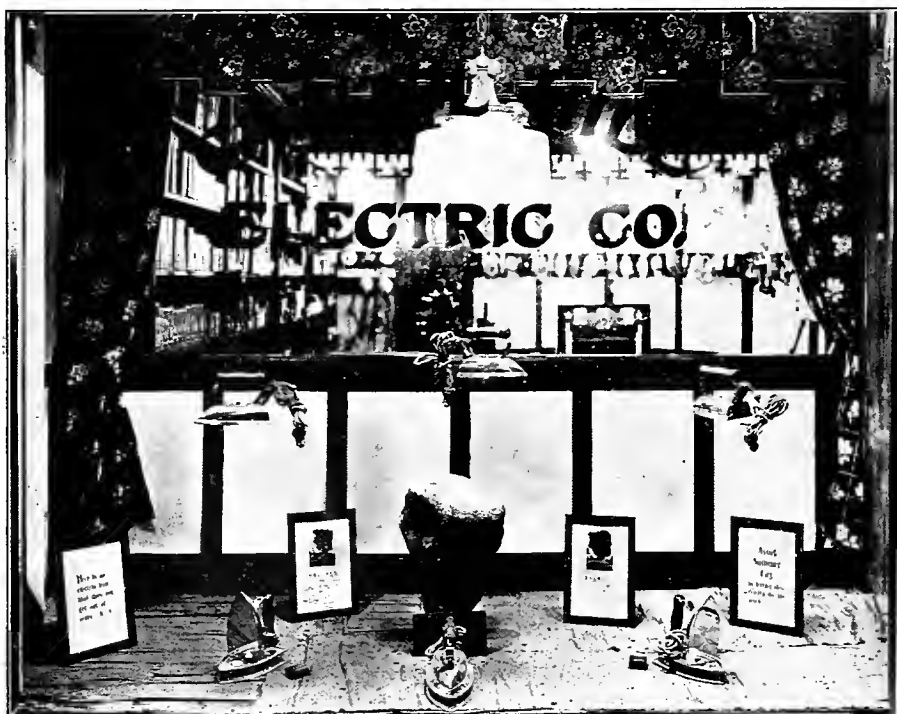
Attention to the contest was secured by the use of newspaper advertisements

and through window displays presented by electrical dealers. The details of the contest could only be obtained by securing pamphlets from the dealers who handled the irons. In this way persons were induced to enter the dealers' stores and many sales were made to persons

seeking the information concerning the contest. Attractive two-color cards were given to all dealers and these tended to tie-in the dealer's display with the general campaign.

A large number of answers to the contest was secured and according to the rules of the contest, all of these essays had to be turned in through one of the electrical dealers in Denver. This arrangement gave the dealers a second chance to secure direct contact with the contestants and to secure the names of the persons who were interested in electric irons.

At the conclusion of the campaign all of the essays that had been deposited with the dealers were collected and a board of judges consisting of J. P. Sprunt, Jr., supply manager of the Westinghouse Electric & Manufacturing Company, in Denver; Clyde Osborne, advertising manager of the Mine & Smelter Supply Company in Denver; and S. W. Bishop, executive manager of the Denver Electrical Cooperative League, read the papers. These judges considered the merits of the essays that were received and awarded the prizes to the winners, two being men. Following the selection of the three winners, these persons, each accompanied by a friend, were taken on a one-day sight seeing trip covering the entire Pike's Peak region, stopping at the Balanced Rock and other points of interest.



Display of the Capitol Hill Electric Company used in connection with the essay contest. Note how the Balanced Rock was brought into the display and how balance was attributed to the iron.

Making a Salesman of the Dealer's Display Window

Spokane Electrical Company Finds That Attractive Display Will Make Customers Out of Interested Pedestrians

For many years electrical dealers have been under the impression that the primary purpose of the display window is to attract attention to the merchandise exhibited there. They have admitted that novel window displays cause pedestrians to stop and inspect the merchandise and make them acquainted with the trade mark of the articles shown in the window. That it is the ultimate aim of the window decorator to get the window shopper into the store so that a sale may be completed has been conceded, but in most cases the window is considered to have gained its purpose if the attention of the pedestrian is obtained for a period long enough for him to secure an accurate mental picture of the merchandise.

In many cases it has been held that this mental picture must be amplified by means of advertising in the local newspapers or by other advertising means. In the opinion of men firmly sold on window displays the show window cannot be considered a salesman in itself, but must be regarded as an attention-getter. When the window has such pulling power that the passer-by is attracted to such an extent that he or she will go into the store at once to make a purchase, it can be considered as an exceptionally effective display.

To prove the value of the window display it is necessary to decorate the window in the best possible manner and then make a check. Checks on the value of window displays can be made by counting the total number of persons who pass the establishment and

then by keeping another count of the number who actually stop and examine the display. In some cases, display windows have been known to completely change the direction of traffic, drawing it from the opposite side of the street to that side on which the feature window displays were presented. Statistics on this change of traffic can be kept in addition to those showing the number of persons who stop at the window. These figures showing the trend of traffic are also illuminating and often are helpful to the dealer.

When the electrical dealer has such an attractive window that he can keep a check on its value by counting the number of persons who enter the store after stopping at the window, he can be well satisfied with his efforts. In cases similar to this, the window has become a real salesman and the real productive value can be accurately determined.

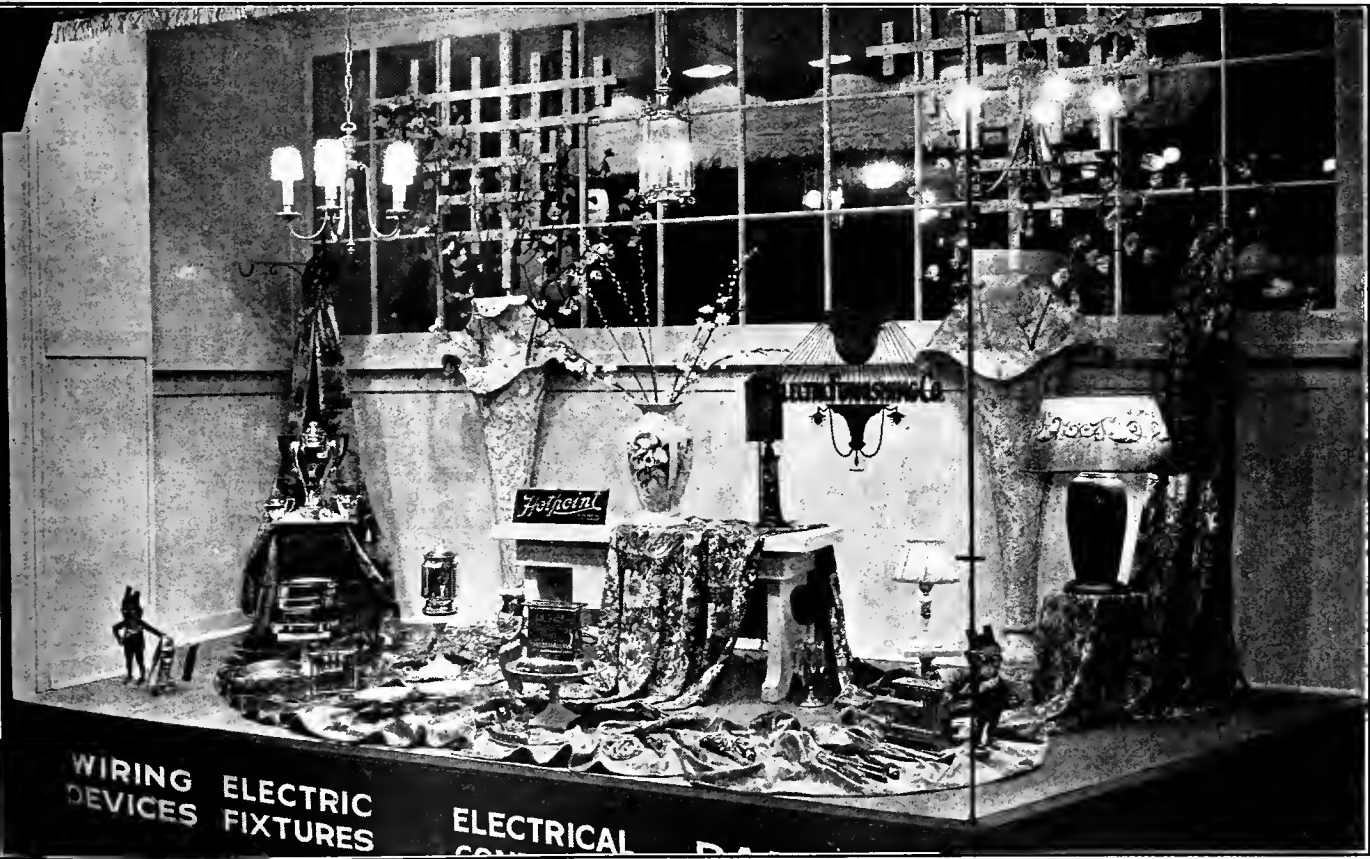
As an example of a firm which believes in the value of well designed window display is the recently organized Electric Furnishing Company of Spokane, Wash. The proprietors of the store, Messrs. Lawson and Jahnke, determined to make the display window so attractive that actual sales would be made from it. Mr. Lawson and Mr. Jahnke on opening the store agreed to put their concern before the eyes of the public and, to make it a competitor of the older electrical stores in Spokane, it would be necessary to install window displays of unusual and attractive design. Their plan was followed out and the displays that were presented in

the opening of the store were extremely productive of sales. Many people who happened to be passing the store stopped to enter and to congratulate the owners on the window displays.

Later, as the firm became better known, people passing by would stop to inspect the appliances and fixtures shown there and many sales were made direct from the window. The Electric Furnishing Company found that in a number of cases people who had only stopped at the window display would come in and ask to see appliances similar to those shown in the window. The company kept no check of the number of sales which were made in this way, but both of the men in charge of the store feel that if a check had been kept that it would have shown that the show window was a material aid to the salesmen of the firm.

Since the establishment of the concern in Spokane, the show windows have been the subject of a great deal of favorable comment. The owners have been particularly pleased with the reception which has been given the window displays and they are firmly convinced that there are real sales producing agents in the well decorated show window.

The Electric Furnishing Company has a very good location in Spokane and part of the success of the window displays may be attributed to this. The store is opposite the Davenport Hotel and is surrounded by small shops handling women's apparel and novelties. The other windows which are adjacent to the electrical store are well decorated and the side of the street on which the Electric Furnishing Company is situated presents a particularly pleasing appearance to the women of the city.



One of the window displays presented by the Electric Furnishing Company of Spokane, Wash., to announce the opening of that electrical firm. Many sales were made directly from this window, and a large number of persons entered the store to congratulate the owners on the display.

Selling the Electrical Idea Through Cooperation

Eighteen Concerns Join in Exhibiting Miniature Model Home Which Is, of Course, Completely Electrified

Because eighteen firms, most of which were building material contractors, agreed to cooperate in making a display at the Alhambra Business Men's Carnival, the citizens of Alhambra, Calif., were given the opportunity of seeing a completely modern bungalow at that fair. The carnival, which is an annual affair, is conducted by the business men of the city and is designed to give the merchants of the city an opportunity to present their products to the citizens at the fair which is conducted in the open.

The modern home which was exhibited at the carnival was one of the leading attractions that was displayed there and a great number of people who visited the carnival did so with the primary intention of seeing the modern home. The home was advertised as the "Model Home" and the intensified use of electricity did much to give the home this name.

The S. & H. Service Electric Company, Inc., was the firm representing the electrical industry among the eighteen firms that cooperated to present the home. This concern, which specializes in electrical construction and merchandising, did all of the wiring in the home and in addition supplied all of the electrical labor-saving devices that were placed in the various rooms of the exhibit.

Space limitations prohibited the contractors from erecting a house of standard size and as the exhibitors wanted to present as many rooms as possible, it was decided that a miniature home, designed to be an exact replica of a standard home, should be built on the exposition grounds. Each firm of the eighteen agreed to furnish a certain part of the work and equipment that should be needed in preparing the home for display.

The S. & H. Service Electric Company, Inc., wired the home completely, making it in reality an electric home. Though the exhibit was not advertised as being an electric home, the visitors realized that to make a home modern a complete list of electrical appliances and convenience outlets for connecting these appliances was necessary. According to reports from the carnival, this method of presenting the electrical message is exceptionally satisfactory, in that the visitors see that it is not only the electrical industry that believes that a home must be electrified throughout to make it modern.

The model home, which was built of Lac-Tile and faced with a stucco finish, was surrounded by a small grass plot in which shrubbery was placed, and stood apart from the other exhibits because of the uniqueness of the idea. This characteristic tended to draw the carnival visitors inside of the miniature home where they were given an opportunity to see the latest ideas in the electrifying as well as the furnishing of a home. A radio receiving outfit was installed in the living room of the home and the kitchen was completely equipped with electrical appliances. An enameled electric range, a utility motor, a dishwasher, and several other appliances were placed in such prominent positions that the housewife on going

through the exhibit could not miss them and would wish that she had them to use in her own kitchen. On the screened laundry porch an electric washing machine and ironer invited the housewife to do her washing at home electrically. An electric refrigerator was also installed on this porch.

In preparing for the exhibiting of the home considerable advertising was done by the group of firms responsible for it. All of the advertising done in direct connection with the model home was done cooperatively, thus permitting the use of larger space in the newspapers that were used. Two days before the end of the carnival, which lasted nine days, a full page advertisement was run in the leading paper. A

great amount of publicity was also secured in an evening paper published in Pasadena. Editorial mention of the model home was prominent in this paper and resulted in bringing a large crowd to the exhibit. In the first week of the carnival 25,000 people were conducted through the miniature home.

To secure the names of the visitors, a prize drawing was held which required that visitors to the home should register as they entered the structure. The list that can be compiled from these names will no doubt be extremely valuable to the concerns that cooperated in displaying the home, in that it will give them a list of persons who are interested in either building new homes or in bringing their old homes up to date. The expense of the exhibit was not great to any one of the firms and all feel that the effort and money that were expended were amply paid for by the interest that was shown in the exhibit.

25,000 People Have Inspected THE MODEL HOME Built at the Carnival

THE EXTERIOR

The contract for the Model Home was let to George Tobin Builders. The Olson Lumber Company furnished the lumber, and because of the fact that the main part of the building is of tile, the Lac-Tile Company ably handled the job. The Bennett Hardwood Company of Pasadena laid the hardwood floors. Kimmel & Young did the plumbing. Balmer & Hammel handled the interior decorating. The S. & H. Service Electric Company wired the house and added all of the modern electrical appliances to be found in the modern home. L. A. Palmer & Company furnished lime and cement, etc. C. B. Dunn is the tinner. The Refiance Paint Company did the painting. The Art Concrete Works added beauty to the landscaping, which was in the hands of the Alhambra Nursery. We must not forget the Alhambra Transfer & Storage Company, which saw that all the materials and furnishings were safely and promptly delivered. The Hoffit Magnesite Company also furnished materials. Chas. Morgan is the plasterer. George Whyte did the masonry, which is no small part of the job. With this array of skilled workmen, all locally known, is there any wonder that Alhambra has been able to take the lead among fast-building cities in the state?



Photo by R. H. Stone, Alhambra

THE INTERIOR

The interior of this miniature, but model, home is a revelation to those who desire the most attractive and modern means for comfort at home. With many of the leading specialists in home furnishing collaborating in this display, is there any wonder that the most modern and efficient furnishings have been installed? The Home Furniture Company lent their efforts to furnish the ideal furniture for dining and also kitchen equipment. The interior decorating by Balmer & Hammel is of the latest design. No small part of the ultra-modern home is its adaptability of the many new electrical appliances in the hands of the S. & H. Service Electric Company we are assured that every electrical convenience is properly installed. Using the new Elastix invisible plugs and the Check Seal system of wiring the best effects are obtainable. There is installed a Rod-Usa Grand, Westinghouse Automatic Range, Valley Dishwasher, Kitchenaid Food Mixer, Thor washer, Utensil Ironer, Frigidaire iceless refrigerator. The lighting fixtures are well selected. The Alhambra Planing Mill supplied material and labor. Everyone who has visited the Model Home has received a number pool for the prize drawing. So you are sure to profit by your visit there.

ASSOCIATED CONTRACTORS

Have Combined to Demonstrate to Prospective Builders the Composite Result of Employing Only the Best Standard Materials and the Most Competent Workmen in the Structure of Modern Homes

GEORGE TOBIN, BUILDER	BALMER & HAMMEL	C. B. DUNN CO.
GEO. WHYTE, MASON	BENNETT HARDWOOD FLOORS	HOFFIT MAGNESITE CO.
CHAS. MORGAN	OLSON LUMBER CO.	ART CONCRETE WORKS
S. & H. SERVICE ELECTRIC CO.	ALHAMBRA PLANING MILL CO.	HOME FURNITURE CO.
LAC-TILE CO.	RELiance PAINT CO.	ALHAMBRA TRANSFER & STORAGE CO.
KIMMEL & YOUNG	ALHAMBRA NURSERY	L. A. PALMER & CO.

**Only Two More Days to See the Model Home at the Carnival
Be Sure to Register There**



Front view of the booth of the British Columbia Electric Railway Company at the industrial show held in Vancouver recently.

Tell the Story Through Exhibits and Billboards

British Columbia Electric Railway Company Secures a Selected List of Prospects at Annual Industrial Show

Industrial exhibitions and billboards have been found to be two of the most attractive forms of advertising electric appliances. The cost of these forms of telling the public the electrical message has been determined to be nominal in proportion to the resulting sales that have been made in most cases. Definite checks are difficult to make, but the merchandiser using either of these two forms of advertising has noticed that sales have increased considerably following their use.

An example of what could be done at an industrial exposition was recently presented by the British Columbia Electric Railway Company of Vancouver, B. C. An exposition at which manufacturers, retailers and other commercial concerns present their products to the people of Vancouver, is held in that city every year. Many thousands of visitors attend the exposition and an excellent opportunity is presented to place the electrical message before the visitors.

This year the British Columbia Railway Company used a booth in the center of the manufacturers' building. This space which had a frontage on three aisles, was used in the displaying of vacuum cleaners, electric ranges and washing machines. The work of arranging the exhibition was left to the sales department of the central station company. Electric service was brought to the booths and during the times that the exhibit was open the appliances that were on display were used as demonstrators. Attendants were on hand to explain the operation of the various appliances and to answer any questions that the visitors might bring up. The entire booth that was used by the company was divided into three sections and illuminated with amber colored lights.

The electric range exhibit was given the center position and the ranges were

grouped around the booth, leaving a space in the center in which was placed a show case. In this show case, samples of food prepared on the electric ranges were displayed. A schedule mounted on one of the walls of the booth stated what articles of food would be prepared on the various days of the exposition. These demonstrations of the ranges were made each afternoon from 2-5 by a competent domestic science demonstrator.

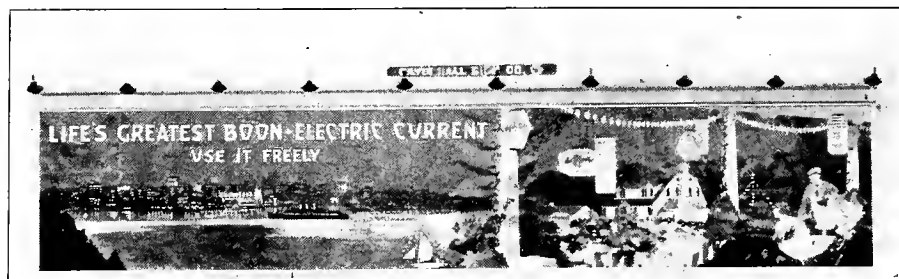
While the demonstrations of the three appliances were being conducted, salesmen circulated through the crowd and talked to interested looking prospects. To those who seemed particularly interested, these salesmen presented slips entitling them to a chance on the stand lamp that was given away at the end of the exposition. This gave the company an excellent opportunity to secure a selected list of prospects at a small cost. Through this scheme the names of 233 prospects were secured and the company was certain that these 233 persons were at least interested in the electric appliances that were demonstrated at the exposition. While the salesmen were talking to the persons to whom they gave chances on the stand lamp, they were able to determine what appliances they were interested in

the most. This aided greatly in the follow-up of the prospect list so secured.

The British Columbia Electric Railway Company has also recently started a billboard advertising campaign. This campaign is being conducted to stimulate the use of electricity and does not give the name of the company responsible for the advertising. The advertising is designed to increase the general use of electrical energy and no specific class of persons is made the subject of the campaign.

The first billboard that was erected by the central station company contains the wording "Life's Greatest Boon—Electric Current. Use It Freely," the balance of the space being devoted to the illustration. On the billboard is a scene of the Vancouver water front showing it lighted at night. A home scene, which is visible in the foreground at the right of the board, shows how electricity serves the home owner by lighting his home and grounds. The billboard is located on one of the main streets of Vancouver and has already attracted considerable attention.

It is planned to use the billboards throughout the campaign, omitting at all times the name of the company responsible for the advertising. The other ideas which will be used as subjects for the billboards include the correct lighting of streets and highways, the proper lighting of homes and the benefits that may be derived from the general use of electric appliances.



The billboard shown above, contains the first advertisement of a series that is to be placed before the people of Vancouver, B. C., by the British Columbia Electric Railway Company.

Dealers Should Cultivate the Lamp Business

By Use of Definite Merchandising Campaigns Dealers Can Sell a Greater Quantity of Lamps to Their Customers

The backbone of any electrical dealer's business is his lamp trade, for the demand for lamps is to the electrical merchant just what the demand for bread is to the grocer. The demand for each comes at periodic intervals and as a result the customer is led into the electrical dealer's or into the grocer's, as the case may be. The demand for electric lamps has been found by many dealers to be the means of operating their concerns at a profit and at the same time has drawn many persons into the store who can be sold other electrical devices.

Just because the demand for lamps is periodical is the reason that the dealer should cultivate this trade. It is his means of being sure that customers will be brought to his store in order that they may secure the lamps that they are in need of at the time. The lamp business stands apart from the trade in other electrical appliances in regard to the periodic demand, as other devices when once sold do not call for the purchase of similar devices for a great length of time. A washing machine when once placed in the home is a permanent fixture and will serve that family for a long period of years. Thus there is no reason for washing machine customers to be return customers for that particular appliance. They may come into the store for some other appliance because they have been well satisfied with the washing machine, but they do not ordinarily come in to pur-

chase another washing machine. The intelligent dealer will serve his washing machine customers well, not in order that he may secure an order for another machine from them, but that he may secure orders for other appliances.

In the case of the lamp customer, the dealer can do well to so serve his customers that they will return to his store when they are in need of more lamps. A customer who receives courteous treatment in a store while purchasing lamps will undoubtedly return to the same establishment when he is in need of other lamps to replace those originally purchased. Thus a continuous series of sales can be expected to develop from the initial sale.

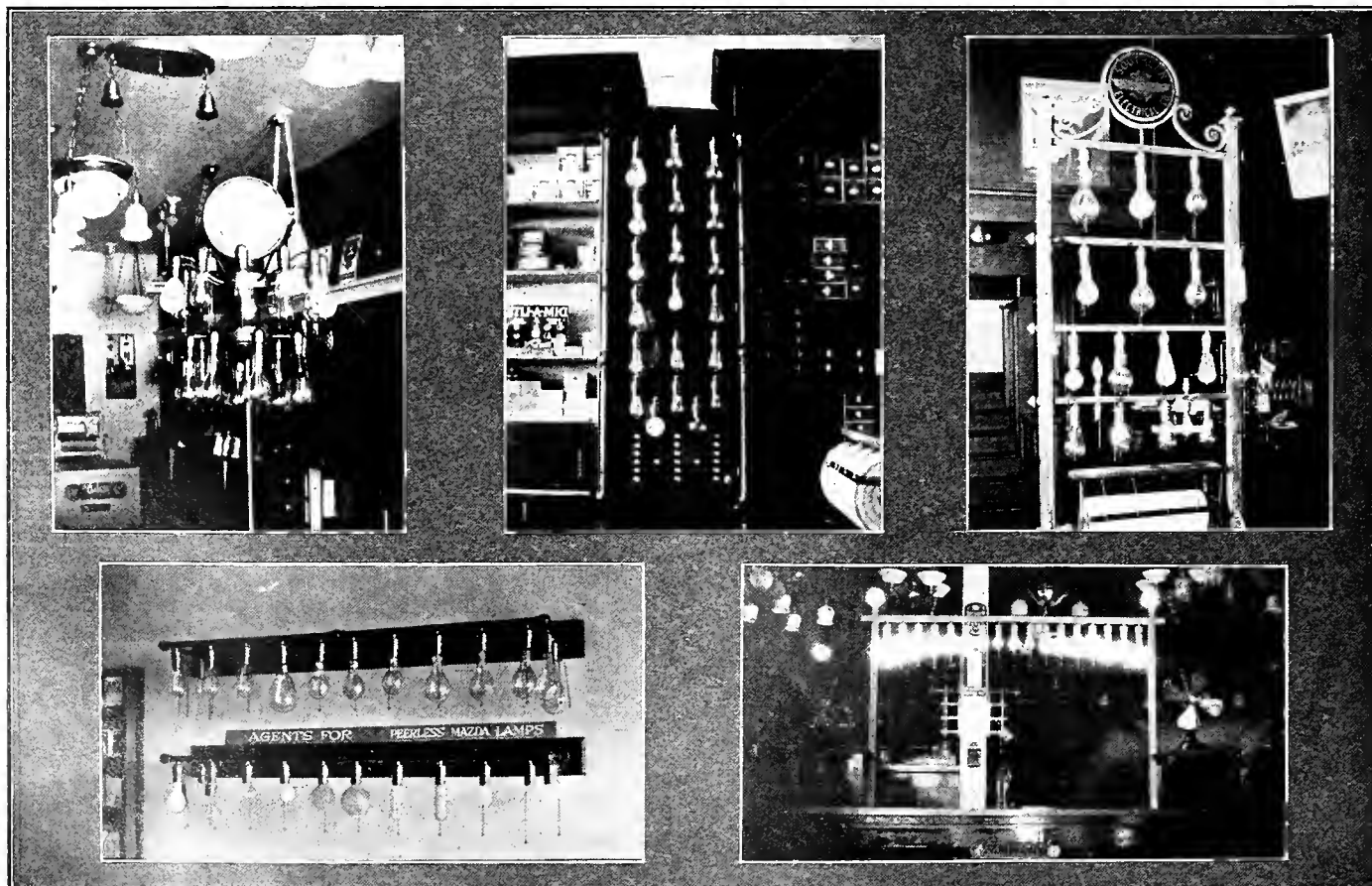
The average lamp customer does not feel that he goes into a store to be "sold" a lamp, but feels rather that he is going in to "buy" a lamp. He intends to go into the store and purchase the same type and size of lamp that he has been using and does not intend to consider the purchase of any other appliance. The alert electrical dealer can change this entirely if he uses the proper merchandising methods. The prospect has entered the store with the intention of purchasing a specific type of lamp, not because he knows that the type he demands is the most efficient and the best suited to his needs, but rather because he is acquainted with that particular lamp.

Many dealers have been active in their efforts to increase the sale of

lamps and in many cases have designed special demonstrating racks for use in making sales of lamps. Several of these racks are shown in the accompanying illustration.

A variety of styles has been developed because dealers have considered that each style has its advantages. The rack which is placed on the counter between the clerk and the customer is advantageous because the salesman can turn on the lights with either snap switches or panel switches without turning his back to the customer and thus breaking into his sales talk. The rack for lamps that is suspended from overhead has the advantage that it may be seen from the other end of the store and thus attracts the attention of anyone who happens to visit the store. Lamps that are displayed against the side wall of the building may often be subjected to a more elaborate scheme of decoration and this will to some extent make up for the fact that the customer is a considerable distance from the lamps and that the salesman may have to turn around to turn on the different lamps.

The demand for lamps is the most active during the fall months, when families are returning from their vacations and are preparing their homes for the winter evenings. The electrical dealer who prepares for the demand and arranges to have his salesmen educated as to the styles of lamps that are the most adapted to the various conditions, will be in a position to profit by this call for lamps. If an effort is made to stimulate the demand for lamps by an advertising campaign, the results should be even more satisfactory.



Various styles of lamp demonstrating racks used by California electrical dealers.

From the Electrical Jobber to the Dealer by Mail

Jobbers introducing new lines to their dealer customers have relied largely upon their salesmen to make the first contact, with the feeling that a personal interview with the dealer will result in a better understanding of the merits of the product. In most cases this has been found to be true, for a personal interview will often bring about a sale where letters and pamphlets, though they fully describe the article, will not do the work.

There are times, though, at which it is impossible for the jobber's salesman to visit all of his customers immediately upon the acquiring of a new piece of equipment and it is in these cases that the sales letter comes to the salesman's aid. The effort then made is to make the letter carry as much of the salesman's personality as is possible and to make it carry the personality of the jobber to the customer.

To assist his salesmen in cases where they cannot immediately call on dealers in their territory, F. N. Cooley, sales manager of the Western Electric Company, Seattle, Wash., office recently prepared a letter to dealers which was designed to introduce a new portable lamp. This letter carried the name of the salesman calling on the dealers and in this way brought to the dealer the personality of the salesman and in addition explained the advantages of the new lamp that it was sent to introduce. A sample lamp was sent along with the letter.

The letter that was sent out to introduce the portable lamp read as follows:

W. E. Cheney,
Coupeville, Washington.

Dear Dealer:

I am Ed Riley's silent assistant.
I have my headquarters at Spokane.
When Ed is real busy I shoot out and give him a hand.

I have a new little article to show you this morning. It's called the Magnalux Portable.
Examine its universal application.
It will cost you \$3.25 each in packages of one dozen. It will retail for \$4.50.

The portable takes a G-18½ lamp (mill type frosted is best).

The ball and socket joint can be tightened with a coin.

Special finishes, assorted, can be had at \$5.00 list, instead of \$4.50, such as nickel, ivory, verde, etc. (These special finishes will be available about September 1st.)

The enclosed order blank is all ready for your signature. There are stamps attached to cover the return of this sample, if you do not care to order a dozen. If you send in the attached order for 12, we will ship eleven and you may keep this sample.

Do you smoke? Ed told me he usually extends this little business courtesy so I brought one with me, help yourself.

Thanks for your time,
Good-by.

SILENT SALESMAN.

TAKING PART vs. TAKING THE AIR

By JOE OSIER

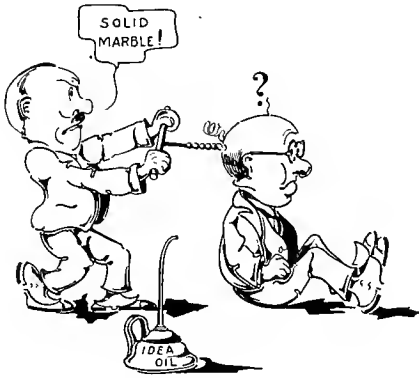
"Some men never read the Bible—because they didn't write it" and—
Speaking of Dumb Davids, which we haven't been, I know a human hole in a doughnut in my town who—

Refused to take part in an Electric Home Exposition because the idea of an Electrical Contractor-Dealer, Jobber and Manufacturer exhibition and demonstration.

Did not originate in his marble dome. This witless wight, not long since, had the nerve to tell me right out loud that—

"I didn't take part in the Electrical Show because I'm too busy—because I don't believe in that kind of advertising and because I see no reason why I should waste my time in 'yessing' a passel of do-less women."

Well, anyway, after I had been revived and fully recovered my speech, I gave this Bird his first and last lesson in—



How to conduct a business—then—
Left him as flat as a vacation pocket book and—

In spite of the fact that I made myself as popular with him as a Red agitator at a Republican rally, I had the satisfaction of analyzing and classifying him to his face in his own shop—

Or in the shop which will be his when he pays off a first and second mortgage.

And, after conceding: "Ain't we got fun"—isn't it great that there are but few cattle of this kind in the electrical business?

Most men in the game are not too busy to participate in Electrical Exhibitions—most of them believe in adver-

tising the industry—and the majority will stand in line to "yes" a sweet woman for an eight-hour shift if necessary because—

They know, it is Daddy's darling who puts out the plunks for all things, including things electrical.

And—we all know, it is the Missus who, attending an Electrical Exhibition,—

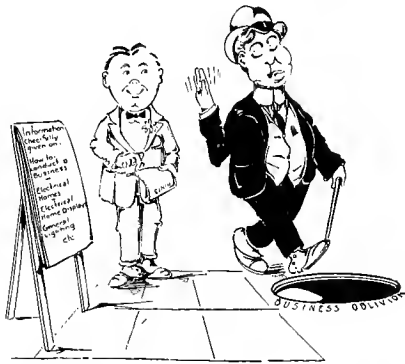
Sees this—spots that and spies the other things and determines that—

"When we can afford it," etc.

Therefore, friends, how can the Boys engaged in the Business, afford to let pass an opportunity to strut their stuff and—

Talk turkey to the disbursing officer of the Goodship Happy Home?

The answer—written on the right side



Mr. White: Interest you, Sir, in our latest—
Mr. Black: Pooh-pooh on that stuff, my boy—try and sell a beginner.

of the ledger, where all can see, is:—
They cannot—and—

Those who know this answer are registering hits with every shot and—

Those who do not know are facing a charging lion with—

A pea shooter in their helpless hands.



In promoting good-will among the citizens of a locality that a company serves it has often been found practical to support any community move that is being sponsored at the time. The Utah Power & Light Company of Salt Lake City, Utah, during the last "Safety First Week" that was conducted there, presented the window display shown above. A miniature locomotive, an electric street car and two automobiles were shown approaching a railroad crossing. Considerable interest was attracted by the display which offered a very impressive visualization of the disastrous results that sometimes occur in such a situation.

INDUSTRIAL NEWS



Decision Is Made to Electrify Oil Fields in Wyoming

Definite plans for the construction of a \$10,000,000 super-power steam turbine plant by the Midwest Refining Company in the famous Salt Creek oil fields in Wyoming have just been announced. The electrification project was decided upon after officials of the Midwest company became convinced that the Salt Creek field will quit as a flowing district within the next two years and will become entirely dependent upon pumps.

The plant, which will be located at Shannon, six miles north of the famous field, will develop power sufficient to pump all wells as well as for drilling operations, field work and general illumination of the fields.

Fuel for the boilers, which will supply steam to the big turbines, will be natural gas from the wells in Salt Creek fields. Because of the present scant water supply and because of the heavy expense in pumping pure water uphill a distance of 45 miles, a huge reservoir will be built on Salt Creek. The dam to be constructed will be two miles long, 40 ft. deep at the face and from 100 to 200 ft. in width at the base, and will hold the flood waters that fill Salt Creek, which at normal times carries a small volume of water.

Detailed plans for the electrification of the field were prepared by A. W. Peake, now general superintendent for the Midwest company. Work will not start until next spring, if then, but in any event the plant will be ready for service within two years. Peake's estimates, after a two-year study and survey, show a great saving will be effected by substituting electricity for steam power in both drilling and pumping operations. When the gigantic project is completed, the Salt Creek field will be the largest electrically operated oil field in the world.

Plans for the complete electrification of the Salt Creek fields were adopted as an economy measure, especially in view of the complex problems which make operation in that district unusual and expensive.

Utah Power and Irrigation Sites Subjects of Filings

The development of 120,000 hp. and the irrigation of 17,700 acres of land in the Ashley Valley in Utah, is contemplated in the projects for which filings have recently been made with R. E. Caldwell, state engineer of Utah. A. E. Humphreys of Denver, Colo., through his agent J. H. Ratliff of Vernal, Utah, made the filings.

The filings seek the diversion of 171 sec.-ft. of water from the Green River

in Uinta County to be used in irrigation work and also the use of 81.5 sec.-ft. of water from Green River for the developing of 120,000 hp. The applicant proposes the erection of a dam at Split Mountain which would be 150 ft. high. Water would be stored for irrigation and power purposes. It is proposed to operate five turbines under a head of 200 ft. in generating the power. A system of canals and pipe lines is proposed for the carrying of the water from the dam to the power house.

Large Broadcasting Station to Be Erected in Denver

Electrical Denver is jubilant with the public announcement by Harry D. Randall, manager of the Rocky Mountain district of the General Electric Company, that a \$175,000 radio station is to be erected by his company in Denver, Colo., to complete the three broadcasting units across the United States.

This station will be one of the largest in this country and on a par with the other powerful centers. The first station of the General Electric Company is being operated at Schenectady, N. Y., and is heard all over the United States. The second station is nearing completion in Oakland, Calif., and is expected to serve the Pacific Coast as far east as the Rocky Mountains. The Denver station will serve the section between the mountains and the Mississippi River.

Denver was chosen by the General Electric Company, in competition with Dallas, Kansas City, St. Louis and Minneapolis. It is largely through the efforts of Mr. Randall and his associates that Denver is to have the new broadcasting unit of the General Electric Company.

Engineers of the company are now engaged in selecting a site preliminary to construction. It is understood the work of actually building the station will not commence until mid-winter. A space between 200 and 300 ft. will be needed to accommodate the aerial towers. Besides, there will be large housing space, for the equipment, broadcasting rooms and rest rooms and parlors for the entertainers.

The Sno-Mon Electric Company, Snohomish, Wash., has been incorporated for \$100,000, with the purpose of retailing power and light to farmers and municipalities in Snohomish County. The firm is a subsidiary of the Delta Electric Company. The trustees are T. N. Bennett and W. H. Mast of Monroe; W. P. Tobey of Machias, and Elmer Lefest and George T. Hendrie of Snohomish.

Ten Million Dollar Fire Razes Berkeley Residences

Thirty-seven blocks of homes in the residential section of Berkeley, Calif., adjoining the campus of the University of California were totally destroyed by fire on the afternoon and night of Sept. 17 when a brush fire, driven by a high wind, crossed the hills above the section and started the conflagration. A total of about six hundred buildings were destroyed. The property damage was approximately ten million dollars.

The distribution system of the Pacific Gas and Electric Company in the burned area was completely destroyed, the estimated amount of the damage being thirty thousand dollars. The Pacific Telephone & Telegraph Company sustained a loss of about sixty thousand dollars when its lines and service connections in the burned area were wiped out.

Lighting and telephone service were restored to buildings left standing within twenty-four hours after the fire started. Street lighting service was furnished to the area within forty-eight hours after the fire and street cars were running through the burned district four days after the blaze.

Although there was a plentiful supply of water in the reservoir, this water was not available to the fire fighters at strategic points because of the failures to make needed extensions in the distribution system. This fact in conjunction with the high wind prevented the stopping of the fire sooner. The fire was finally checked when the direction of the wind changed. Dynamite was used to raze a number of buildings in the path of the flames. This aided somewhat in checking the advance of the fire.

Newspaper reports of the damage to the Great Western Power Company's sub station at Crockett, Calif., were greatly exaggerated. Lightning struck the 22,000 volt transmission line and burned out an oil switch and the attendant switching and metering gear. The service interruption was very short due to the almost immediate throw-over to additional feeders. Considerable credit is due the company on account of its prompt action in restoring service under difficult conditions.

The Pacific States Electric Company has announced its decision to open a branch house at once in Spokane. A considerable stock of standard lines will be carried. Harry B. Rogers, who has for a number of years represented the company in Spokane, will be the manager of the new branch, reporting to George A. Boring of Portland.

Electric Power Aid in Building of Two Earth-Fill Dams

The use of electricity in the building of the new earth-fill Henshaw Dam in San Diego County, California, proved so successful that the Mutual Water Company of Escondido has employed the same equipment in the enlargement of the Escondido Reservoir, now under way. Like the Henshaw Dam, the Escondido Reservoir dam is an earth-fill structure. The present dam is being used as one of the sides of the new and higher dam, and another earth embankment will be built near it. The intervening space is to be filled with a clay puddled core, placed hydraulically.

Instead of obtaining the clay puddling by means of hydraulic wash with guns, as in the case of the Henshaw Dam, an electric dredge is sucking up clay from the bottom of the lake, thereby both deepening the reservoir and building a higher dam. Electrically operated pumps lift the water to the dam.

In the building of the Henshaw Dam on the Warner ranch it was found that the earth-fill, placed by steam shovels and teams, cost about \$200 per cu. yd., while the hydraulic fill cost but 80 cents. This economy influenced the engineers in charge of the Escondido project to the use of electric equipment.

Since the completion of the Henshaw Dam, in compliance with contracts between the Henshaw and the Mutual Water Company interests, water is to be delivered from the Henshaw Dam to the Mutual company for distribution in Escondido and surrounding country. The enlargement of the Escondido Reservoir capacity by the heightening of the dam, is to provide greater capacity for water diversion from this reservoir.

Negotiations have been made for the development of electric power from the Henshaw Dam in bringing the water down to Escondido, it is understood.

Newspaper and Electrical Firms Join in Cooking School

The fourth annual cooking school, conducted by the Ogden Standard-Examiner, in conjunction with a number of merchants and electrical firms, was held in Ogden, Utah, five days commencing Sept. 4.

Miss Bernice Lowen of New York City, domestic science expert of the Edison Electric Appliance Company, was in charge. In the course of her lectures and demonstrations Miss Lowen showed the proper methods of using the electric range and many other electrical appliances, and demonstrated methods of household conservation as to foods, time and labor, and showed the uses of various food products in most attractive forms.

A question box was arranged so that any person attending the school could ask questions of Miss Lowen. Many questions were submitted, and were answered from the platform.

Home cooking contests were featured, these being arranged into five different divisions, namely, bread, layer cake, loaf cake, pie and rolls. Every article so entered had to be baked at home. The prizes included electrical kitchen equipment, a kitchen cabinet, as well as hundreds of dollars' worth of food products.

Electrical equipment had a dominant place in the cooking school. An electric range was used by Miss Lowen in all of her cooking demonstrations, and electric washing machines, vacuum cleaners, dish washers, irons, grills, waffle irons, toasters and percolators were introduced and demonstrated as up-to-date household equipment.

The electrical firms cooperating with the Ogden Standard-Examiner were: The Utah Power & Light Company, Edison Electric Appliance Company, Ogden Electric Supply Company and The Lighthouse.

The large auditorium of the Ogden Senior High School was used for the cooking school sessions, and many hundreds of Ogden housewives, and a number of those from outlying communities were in attendance. The interest in these cooking schools becomes greater each year because of the gradually increasing use in the home of electric ranges and other electrical appliances.

Prepare to Publish Proceedings of N.E.L.A. Convention

That members of the National Electric Light Association and other persons, who are interested in the topics discussed at the last annual convention of that organization, may secure copies of the proceedings of the convention, the Association is having these proceedings printed and the copies are to be delivered some time in October. The proceedings will be sold as complete copies only and no separate forms of the proceedings of any of the sections will be printed this year.

According to the rules passed by the Association, one set of the proceedings will be mailed without charge to each company in good standing as a member of the Association; one set to each geographic division, state association, company section and public utility information committee, no order being necessary therefor. Single copies will be furnished to associations and organizations exchanging like courtesies with the National Electric Light Association; single copies to universities, colleges and engineering institutions; single copies to selected libraries.

Members of the Association, regardless of class, can secure the proceedings for the sum of \$5, the price to non-members being \$10. Members of technical associations may purchase copies at the member price, provided the orders for them bear the endorsement of the associations to which such members belong. Students of universities and colleges may purchase copies at the member price also. All orders should be addressed to the National Electric Light Association, 29 West 39th Street, New York, N. Y.

To give representatives of the Federal Power Commission an idea of the project that is being planned by the Sacramento (Calif.) Municipal Utility District, four engineers selected by the Commission were taken over the territory recently. The party, which included members of the district board, inspected the power house site and the dam site. The Sacramento district intends to generate power at the Big Bend Power House under a head of 1,650 ft. The development of 40,000 hp. is planned.

Section Chairmen for Northwest Association Appointed

Committee chairmen of the executive committees of the four sections of the Northwest Electric Light and Power Association have recently been appointed by George L. Myers, president of the organization. The personnel of the committees has not been announced yet.

The executive committee chairmen of the four sections are as follows: Accounting Section, George F. Nevins, secretary and treasurer of the Pacific Power & Light Company; Commercial Section, W. M. Shepard, vice-president and general agent, The California Oregon Power Company; Technical Section, John B. Fiske, consulting engineer of The Washington Water Power Company; Public Relations Section, Norwood W. Brockett, Puget Sound Power & Light Company.

A. T. Schultz, vice-president, Helena Light & Railway Company, Helena, Mont., has recently been elected the vice-president of the Association from Montana. Because no representative from that state was present at the annual convention, no vice-president was elected at that time.

Applications for Large Project in California Made

Three applications for water rights in Lake, Yolo and Napa Counties of California have recently been filed with the Division of Water Rights of the California State Department of Public Works by Ray L. Allin, a Sacramento civil engineer. The applications state that the irrigation of 300,000 acres is intended and that the applicant proposes to develop 273,000 hp.

C. L. Tibbals, Sacramento engineer, has made three applications for sites in Plumas County. Mr. Tibbals is acting for E. P. Vandorcock, the promoter of a project on the Feather River near Oroville. The applicant has announced that the project includes the storage of water in two large reservoirs and several small ones. After the water is used in the generation of electricity, it will be used in irrigating a large area in Butte County.

Cooking School Dates Announced for Northwest Section

Announcement of a schedule of cooking schools for the Northwest has recently been made by the Edison Electric Appliance Company. The next school, from Oct. 15-20, will be held in Tacoma, Wash., working with the Tacoma Ledger and followed by a range campaign with the municipal lighting department. The date for the Seattle school has not been definitely set but will be about Nov. 1 and will be conducted under the name of the Seattle Times. The Puget Sound Power and Light Company will stage a range sales campaign immediately following the school.

A school held under the auspices of the Spokane Chronicle has just been completed in that city. Instruction was given to housewives Sept. 24-29 and immediately following the cooking school the Washington Water Power Company inaugurated a special range campaign.

Propose Investigation of Range Situation in Northwest

To determine whether the electric range load is a profitable one for the central station, a thorough investigation of the situation in the Northwest is to be conducted among the members of the Northwest Electric Light and Power Association. The executive committee of the association recently went on record as being in favor of making the survey.

Last year's Commercial Section of the Association made the recommendation that the survey be conducted and suggested that the Association stand the expense of making the survey. The executive committee at its first meeting of the year held in Seattle, recently, appropriated no money but left it to the manufacturers and central stations to furnish the necessary funds. The Commercial Section has been directed to secure the central station contributions.

The proposed investigation will endeavor to determine the cost of service, the maintenance cost of ranges and the amount of revenue that may be derived from this load. It is proposed to employ a special man to obtain the information desired.

Plans Made for Handling Lumber Demand of Japanese

Convinced by the developments of the past two weeks that higher prices with an almost unlimited market will be created by Japanese reconstruction buying, lumber manufacturers of western Washington and western Oregon are laying plans for the busiest fall and winter in the history of the industry. Mills that are now running one shift are planning on operating a night shift, and mills that have been running double shifts plan on speeding up production. The supply of logs is the only uncertainty, as it is considered certain that the present supply will be taxed to capacity of the logging camps.

A definite statement of Japan's immediate needs is expected shortly. The first of the orders that will extend over three or four years is also expected soon. There has been little accumulation of stocks in Northwest yards, but an order for one billion feet of lumber

could be filled within sixty days by Washington mills alone, it is estimated.

The outstanding result of the Japanese reconstruction buying is the fact that the problem of marketing the lower grades will be disposed of for years to come, as it is expected that Japan will take all the commons the mills can cut for several years to come, as well as large quantities of high-grade lumber.

The Douglas Fir Exploitation & Export Company of Seattle, following a conference to consider ways in which the Pacific Northwest lumbermen can best aid in rebuilding the devastated cities of Japan, has decided to appoint a commission of lumber experts and building advisers to visit the stricken areas and investigate the needs of the vast reconstruction problem. The Douglas company is the largest export lumber selling agency on the Pacific Coast, with stockholders including more than one hundred of the largest lumber mills in the Northwest. It is expected the commission will remain abroad more than three months.

The company will exert every effort to prevent profiteering in lumber at Japan's expense, and has announced a company donation of a shipload of lumber, 4,000,00 ft., for the relief work. The commission members have not been named, but a special committee to handle all details in advance of the commission's departure, includes R. H. Burnside, Portland; W. Y. Henry, Tacoma; A. L. Paine, Hoquiam; W. H. Bonner, Everett; F. C. Knapp, Portland; E. G. Griggs, Tacoma, and E. G. Ames, Seattle.

Electrically Cooked Food Served Guests at Store Opening

The formal opening of the new store of the Walker Electric Company of Boise, Idaho, at 824 Main Street on Sept. 8, was an occasion of considerable interest to the electrical fraternity and to the citizens in general.

Coffee, wafers and midget waffles electrically cooked on stock equipment were served all day. Demonstrations of electric ranges, irons, a home electric refrigerating plant and other appliances were given. A total of 4,262 visitors registered during the day.

Development of Electric Truck Business Recommended

One of the best bits of evidence that electric truck business is on the brink of a period of unprecedented expansion is the cooperative sales and service plan which has been put into effect by the Electric Transportation Company, Inc., of Hartford, Conn. This company, which until very recently was a department in the Hartford Electric Light Company, has branched out as a separate business under the direction of W. M. Thayer, fully convinced that it will not be long before the electric truck will replace the horse-drawn vehicle and the gasoline truck for at least 80 per cent of all city delivery work.

With the proper application of the electric truck in the field of short-haul frequent-stop service well in mind, the Electric Transportation Company is aiming to speed up this condition which they are convinced must ultimately be. They have arranged that the purchaser of an electric truck does not need to buy a storage battery but may rent one from the company. In this connection the service organization supplies a battery for each vehicle and not only services it but the user pays a mileage basis with discounts from the fixed rate where the driver uses common sense in operation.

The battery rental service relieves the owner of the investment in a battery and also of repairs and charging. Continuous day and night service is rendered so that the exchange of a discharged for a fully charged unit is possible at all times. This arrangement permits of continuous operation if desired by the user as is often the case in busy seasons when both day and night work is done. That the service and storage plan is appreciated by the users of electric trucks in Hartford and vicinity is shown by the fact that 89 per cent of them are serviced at the station.

The Portland Railway Light & Power Company is to put in extension lines for both light and power to the towns of Warren and Scappoose, Ore. The franchise has been given and petitions from the people living in the two towns assure sufficient demand for the service to pay its installation.



Members of the staff of the Westinghouse Electric & Manufacturing Company in the Denver, Colo., district, 1918.

Electricity to Play Important Part in Industries Show

A Palace of Electricity; an exhibition of the work of the sculptors and artists of California; a section devoted to the exhibits of women in industry; a miniature of San Francisco's Hetch Hetchy water and power project, are among the things which will be featured at the third annual California Industries Exposition, to be held in the San Francisco Exposition Auditorium from Nov. 17 to Dec. 2. The Palace of Electricity will be set up in Polk Hall, on the ground floor of the great auditorium, and in it will be exhibited every device calculated to lessen housework and to make the home more beautiful. A committee composed of members of the San Francisco Electrical Development League has prepared plans for the special illumination of the Palace of Electricity. A unique method of lighting the hall has been considered and present plans call for the expenditure of about two thousand dollars to install this scheme of illuminating the booths of the electrical exhibitors.

This year's exposition will be twice as large as the two preceding ones. It will occupy every available foot of floor space in the auditorium, whereas the two preceding shows have found sufficient space for their exhibits on the main floor and balcony.

With the enlargement of the exposition the bars have been let down, so that this year any industry operating in California will be permitted to exhibit. Heretofore the exhibits have been confined to made-in-California products.

Municipal Publicity Department for Seattle Condemned

Through a resolution adopted by its executive board the Voters Information League of Seattle, Wash., went on record as condemning the proposal of O. T. Erickson, Seattle Councilman and others to include in the city budget for next year an item of \$18,000 for the establishment of a publicity bureau for the benefit of the city-owned public utilities. The resolution suggests as an alternative plan that each utilities department affected be allowed a pub-

licity appropriation sufficient for its reasonable needs, and that this sum be directly expended by or under the personal supervision of the head of each department; and that all publicity given to the public shall be made over the signature of the respective heads of department.

The League expressed the belief that there is no need for the establishment of a special publicity department for the city, attendant overhead expenses, employment of a publicity head or agent at a salary of not less than \$200 a month, and other incidental expenses, as suggested by the Erickson resolution.

New Pasadena Fire Alarm System Is Put into Operation

The new fire alarm system built for the City of Pasadena, Calif., by the Stewart Electrical Manufacturing Company, of San Francisco, has been put in commission after several months of preliminary preparation. The new system was installed at a cost of \$85,000 and is one of the most modern in the United States.

Louis Degan, the engineer who designed and installed the system, claims that it is as nearly mechanically perfect as possible. A special arrangement provides that even if the circuit is broken an alarm could be turned in. Alarms may be received either by operators or automatically. The fire alarm boxes are so equipped that telephone orders may be sent to the station by firemen without interfering with alarms that may come through.

The California Oregon Power Company is building a power plant in Klamath Falls, Ore., on the east bank of the Link River. The specifications call for the equipment for a 4,500-hp. plant. This is an increase of about 1,000 kw. over the plant originally planned when the abandoned canals and rights-of-way were purchased from the United States Reclamation Service. The generating plant will be located 4,200 ft. down the river from the present dam, at which point there will be a 40-ft. drop into the turbines. Preliminary work in locating by boring permanent rock bases for the foundations is under way.

Organization of Denver League Manufacturers Planned

Action was taken recently by the manufacturer members of the Electrical Cooperative League of Denver, Colo., looking toward the permanent organization of that group. To that end, arrangements have been completed for another meeting, October 2, at which time matters of policy and interest especially to manufacturers will be considered.

The purpose of the definite organization of the manufacturers' division is that of effecting a solution of problems confronting that branch of the industry as a result of more frequent meetings and the development of a line of action whereby definite assistance can be rendered the League in its work among Denver architects, builders, contractors, merchants and others concerned in adequate wiring and lighting.

Another feature is that of rendering complete assistance to the Denver League in the maintenance of its information bureau.

Southern California Edison to Erect Stores Buildings

A building permit for the erection of the first units of the company's new general stores at Alhambra, Calif., was recently issued to the Southern California Edison Company. These general stores buildings when completed will serve the entire Edison system. Supplies and equipment will be distributed from this base to the secondary general stores at the various district headquarters.

The Southern California Edison Company purchased 26 acres of land in the industrial section of Alhambra about a year and a half ago and the new structures will be located on this tract. A pole-treating plant and boiler house have already been erected. The new group of buildings will consist of eight units with a total floor area of five acres.

Among the buildings to be erected are: a building for the test department, an open storage shed, and a shop. These are in addition to the general stores building.



Annual outing and jollification which was held Sept. 8 at Bergen Park in the mountains in the vicinity of Denver.

Record Attendance at Rocky Mountain Convention

Program of Excellent Character Is Presented at Most Successful N.E.L.A. Section Meeting Ever Held in Territory

The best convention in the history of the division is the unqualified comment of leaders in the Colorado Public Service Association and Rocky Mountain Section of the National Electric Light Association over the annual joint meeting of those groups at Glenwood Springs, Colo., Sept. 17-19. The convention drew a larger number of utility chiefs and their families than ever before were in attendance, the total registration reaching 172, a fifty per cent increase over the previous high record established last year.

Special praise was given to the high calibered program which included a number of papers from nationally known figures in the electrical industry. Several prominent attorneys of Denver were also speakers and one, the Hon. John T. Barnett, in his address on the American Constitution, drew the fire of Gov. William E. Sweet of Colorado. The latter was not present but through the newspapers of the region replied the next day in what is regarded to be the opening battle between the two chief aspirants in the coming Colorado senatorial race.

For the first time since its organization, complete reports were submitted on division activities by section and committee chairmen. Activities of these groups and the encouragement of more interest throughout the division necessitated a plan, approval to which was given by the convention, providing for quarterly meetings, one each in Denver, a Wyoming city, a New Mexico city, and the annual convention at Glenwood Springs. The first of these sessions will be held at Albuquerque, N.M., early in November.

Better public relations, customer ownership, and commercial development of the industry were the outstanding subjects of discussion. Nearly every paper and report presented included one or more phases of these utility problems.

One of the most interesting papers presented at the convention was that of Charles R. Brock, a Denver attorney, on "Public Utilities—History, Causes of Unpopularity, Menace of Municipal Ownership." John W. Demaine of the Minneapolis General Electric Company, in his talk on the generation of goodwill launched a discussion that proved unusually illuminating to the central station representatives present, judging from the questions asked and the comments heard after the meeting.

Considerable attention was paid to the same subject in the paper presented by Mrs. Alma E. Hunt who spoke on the promotion of electric cookery. Mrs. Hunt is the head of the electric cookery and home economics department of the Southern Colorado Power Company, with headquarters at Pueblo. Her appearance on the program of the convention is said to be the first time a woman has so been honored in the Mountain Division.

Another departure on the program was that of the subjects assigned to several of the electrical leaders. Clare N. Stannard, vice-president and general manager of the newly formed Public Service Company of Colorado discussed

"Timely Topics," while George Hughes, president of the Edison Electric Appliance Company, presented a number of present day problems confronting the electrical industry.

As a result of the action taken at the annual convention last year the officers of the Rocky Mountain Division elected at that time did not assume office until July 1 of this year in order that the official and fiscal year would coincide with the national organization. As a result D. C. McClure, electrical superintendent of the Denver Gas & Electric Light Company, presided at the meetings along with Ernest Stenger, receiver of the Denver Tramway Company, president of the Colorado Public Service Association. In the annual election, the latter was succeeded by Ben S. Read, president of the Mountain States Telephone & Telegraph Company, while in the National Electric Light Association, Norman Read, general manager of the Colorado Power Company, was designated to succeed Mr. McClure next July. Clare N. Stannard of the Denver central station was added as a vice-president to the division organization. A. C. Cornell, Denver manager of the Western Electric Company, was re-elected treasurer and O. A. Weller was reappointed secretary.

Appliances and Washers Receive Attention in Booklets

Two recent issues of the organ "Sales Helps," published by the Society for Electrical Development, Inc., contain excellent suggestions for the electrical dealer. The two booklets are entitled "Table Socket Appliances" and "Electric Washers."

In the issue devoted to table socket appliances, a mass of advertising material and sales letters is presented. The suggestions present typical examples of letters and advertising copy and in addition show proper layouts for window displays. The advertising layouts suggested are particularly attractive.

Suggested means of increasing the dealer's washing machine business are incorporated in the issue of "Sales Helps" devoted to electric washers. Here also suitable letters and advertising layouts are presented along with attractive window display suggestions.

Ornamental Lighting Considered for Denver Highway

Another ornamental street lighting system extending along a new highway being opened through the center of town is being planned in Denver, Colo. It is proposed to provide a boulevard lighting system along this street—Broadway—from Glenarm Place to and across a new viaduct to the Denver Union stockyards, a distance of approximately two and one-half miles.

Backing the movement is the Broadway Extension Association, headed by John S. Flower, president, and some of Denver's most prominent business men, including factory heads, lumber dealers, real estate leaders, contractors and public spirited citizens.

Transformer Serves Utility for Eighteen-Year Period

Despite the fact that it had been in service for eighteen years, a 20-kva., 10,000-volt transformer operating on the lines of the Southern California Edison Company, was removed from service only because it was, according to instruction tags, "no longer needed in this district."

The transformer was sent from the Fullerton district to a Los Angeles



Core and coils of transformer after eighteen years of service with no attention.

warehouse with instructions to clean and paint it. Before being sent to the shop for the cleaning and painting, the transformer successfully withstood the potential tests that were made.

When the transformer case was removed the sludge at the top resembled coke which was knocked off with a hammer. At the bottom it looked similar to axle grease. Records of the Pittsfield factory of the General Electric Company, where the transformer was made, show that the apparatus was tested in January, 1905.

Contract for Canadian Dry Dock Given Vancouver Firm

The Dominion of Canada Government has awarded the contract for equipping the new dry dock at Esquimalt, Vancouver Island, with pumping machinery, machine shop, lighting system and other incidentals necessary to a modern dry dock, to Hodgson, Marble & King, of Vancouver, for \$200,000. The contract calls for three 60,000-gal. electrically-driven pumps besides a number of auxiliary pumps, and the housing of the whole in a reinforced concrete building.

Work on the construction is to be commenced at once. It is expected that the dock, which has been under construction for more than two years, and which has entailed an enormous amount of rock excavation, will be completed next year. The total appropriation for the dock is five million dollars.

Ogden Rotarians Told of Growth of Electrical Industry

In an address before the Ogden (Utah) Rotary Club on Sept. 5, which covered some interesting developments in the electrical industry, S. R. Inch, vice-president and general manager of the Utah Power & Light Company, traced the growth of the industry from the building of the first power plant in England in 1878 up to the present time. He pointed out the rapid progress which has been made in Utah in the development of water power and the bringing of electricity to industries and homes.

In the territory now served by the Utah Power & Light Company, Mr. Inch said, there were originally many small companies rendering inadequate service. In 1912 these companies were consolidated into the present organization, which now has an installed capacity of 225,000 hp. as compared with 120,000 hp. eleven years ago, and is now serving 210 communities, as against 130 in 1912.

Mr. Inch also pointed out some of the many ways in which the Utah Power & Light Company contributes to the welfare of the communities it serves. He emphasized the fact that the company pays an enormous sum in taxes each year, and distributes several millions of dollars each year in wages to about 3,000 employees, in addition to large local expenditures for material and supplies.

Second Convention of Electric Clubs Is Successful

More than one hundred and fifty delegates of local electrical leagues and clubs and representatives of all the branches of the electrical industry were in attendance at Camp Cooperation III, the second annual conference of local electrical leagues and clubs, held at Association Island, N. Y., Sept. 16-19. League business, dealing largely with the benefits to be derived from co-operation, was discussed at the five sessions that were held.

W. E. Robertson was elected chairman of the conference. The first session was devoted to the discussion of how national ideas could be put to work locally. It was pointed out by L. D. Gibbons of Boston, Mass., that there was a need for a national tie-in for local leagues that would co-ordinate their activities and clear their experiences for general application. Considerable time was spent in telling of the progress that had been made by the local leagues during the past year. The importance of residence lighting in league work was discussed in one of the meetings and was the first of a series of commodity programs in which was emphasized the opportunity for the league to engage directly in the development of specific commodity fields.

The delegates at the convention devoted considerable time to the relating of experiences with the exhibiting of electric homes. It was the consensus of opinion that it was a mistake to endeavor to commercialize the electric home, either to endeavor to make money in the sale of appliances or by endeavoring to sell the home or fixtures at a profit.

L. R. Davis, of the Association of Electragists, International, told the

gathering that it was a mistake to put a quantity of routine work on the hands of the local secretary of any league. He stated that the secretary should be given the time and opportunity to engage in field work and that executive work should be done by the executive committee and officers of the organization. H. A. Lane of the Joint Committee for Business Development stated that the leagues in the larger cities should take an interest in the suburbs and outlying towns and endeavor to instill the spirit of cooperation there.

Six talks on "electrical housekeeping" were delivered before the meeting by women interested in the industry. These speakers endeavored to present the feminine point of view regarding electricity in the home and in a satirical manner pointed out some of the fallacies of putting the work of electrifying the home in the hands of men.

At the session devoted to the discussion concerning newspaper publicity which was presided over by Earl E. Whitehorse, commercial editor, *Electrical World*, the opinion was formed that leagues could do well to sponsor electrical pages whenever possible. The final meeting of the convention was devoted almost entirely to the discussion of the need for national direction of league activities.

In commemoration of thirty-five years of service with the Commonwealth Edison Company and its predecessor companies in Chicago, Ill., men of the company who had been associated with the guest of honor upwards of ten years, gave a banquet to L. A. Ferguson, vice-president in charge of operations, on Sept. 12. At this time a book, containing the signatures of one thousand men and women who had served with him for a decade or more, was presented to Mr. Ferguson. The guest of honor first entered the employ of the Chicago Edison Company in 1888. When the Chicago Edison Company and the Commonwealth Electric Company were consolidated in 1907 Mr. Ferguson was made vice-president of the present organization.

The Atchison, Topeka & Santa Fe Railroad has recently completed a survey of the hydroelectric possibilities of the Colorado River, according to W. B. Storey, president of the railroad company. Mr. Storey in addressing the Chamber of Commerce of Pasadena, Calif., stated that the company has no definite plans concerning the electrification of its lines, but that the question might come up in the near future.

The annual banquet of the Seattle Section, American Institute of Electrical Engineers, was held on Sept. 10, at the College Club. Professor W. A. Russell, C.E., M.E., delivered an address on "The Engineers' Latest Job." C. F. Terrell made his report on his trip to the National Convention at Swampscott, Mass.

The city council of Pasco, Wash., recently voted to purchase the water system of the Pacific Power & Light Company for \$60,000 and to grant the firm a 50-year franchise for light and power service in the city.

Salt Lake City Audience Hears Illuminating Engineer

George H. Stickney, illuminating engineering assistant to the sales manager of the Edison Lamp Works of the General Electric Company, whose headquarters are at Harrison, N. J., spent Sept. 13 and 14 in Salt Lake City, Utah, and while there Mr. Stickney gave a talk before a large gathering of electrical people at the Commercial Club.

At that meeting he told of the progress that has been made in the art of illumination during the past few years, and of the possibilities for future development. He urged the necessity of co-operation of all branches of the industry in educating the public to the value of better lighting. Mr. Stickney impressed upon local electrical interests the broad field which is before them in developing this phase of the electrical industry.

Mr. Stickney on Sept. 20 addressed the electrical industry of Denver, Colo., following his attendance at the Glenwood Springs convention of the Colorado Public Service Association and the Rocky Mountain division of the National Electric Light Association. This talk was given as the forerunner of a model lighting exhibit of a commercial-industrial nature to be opened to the public shortly by the Denver Electrical Co-operative League. The subject of the talk was "Does Good Lighting Pay?"

Power Development on Williams River Is Contemplated

Tentative plans for a power and irrigation project on the Bill Williams River in western Arizona, have been announced by a new corporation known as the Williams River Corporation. It is reported that the project will involve the construction of a series of four dams on tributaries of the Bill Williams River. Filings on the damsites have recently been completed.

It has been announced that a double use will be made of the water, first for the development of power and second for the irrigation of lands in the Parker district. Sonderegger & Hincks, Los Angeles engineers, are preparing plans for the project.

Remington Arms Company Wins Patent Suit Decision

A decision in favor of the Remington Arms Company, Inc., has just been handed down by Judge Hugh M. Morris of the United States District Court at Wilmington, Del., in the patent infringement suit of the National Cash Register Company of Dayton, Ohio, against the Remington company. This suit was filed by the National company immediately after the Remington cash register was placed on the market about two years ago, and alleged infringement by the sale of that machine of three patents owned by the National company. In the present decision the Court found two of the patents invalid and the third not infringed.

This is the third decision which has been handed down in this case. The first decision was by Judge Morris, denying the plaintiff's motion for a preliminary injunction, on July 29, 1922. The second was the decision of the United States Circuit Court of Appeals at Philadelphia, confirming the first decision of Judge Morris.

Meetings

Arrangements Are Completed for Institute Convention

All arrangements have been perfected for the Pacific Coast convention of the American Institute of Electrical Engineers at Del Monte, Calif., Oct. 2-5, 1923, and for the two inspection trips which will be afforded delegates immediately following the convention. In addition to a list of high class papers on important engineering subjects, elaborate plans have been made for the entertainment of the many delegates.

One of the features of the convention will be a paper by C. P. Steinmetz, consulting engineer of the General Electric Company, and his assistant, J. L. R. Hayden, on "High Voltage Insulation." Professor Harris J. Ryan of Stanford University, the new president of the Institute, will preside over the sessions at Del Monte and in addition will deliver a paper on "Researches Relating to High Voltage Transmission." Other equally interesting and important papers will be presented while the discussions are expected to bring out much additional information regarding the design, construction and operation of high tension apparatus.

The two special trips which have been arranged for the delegates include a trip over the Big Creek development of the Southern California Edison Company and another to the various units of the super-power system serving the San Francisco Bay region, including the 220-kv. Vaca-Dixon substation of the Pacific Gas and Electric Company.

First Meeting After Vacation Held by San Diego Club

Its summer vacation over, the San Diego Electric Club settled down to a year of accomplishment in the first meeting since June, on Sept. 18. While the attendance was not large, President Zweiner of the club declared it was all that he expected after so long a cessation of operations and the added circumstance of a change in meeting place location.

The first meeting was more of a get-together and re-acquaintance gathering, there having been no regular program arranged for the day. General discussion of plans for the year brought forth unusual enthusiasm and "Jess" Zweiner predicted from this preliminary showing a successful season ahead. A regular programmed meeting was held on Sept. 25.

Civil Engineers Head Addresses Salt Lake Engineers

Charles Frederick Loweth, president of the American Society of Civil Engineers, and chief engineer of the Chicago, Milwaukee & St. Paul Railroad, was the principal speaker at the weekly luncheon of the All Engineers Club on Sept. 10.

The future of the engineering profession is a bright one, as is indicated by the recognition given engineers during the last two years, said Mr. Loweth.

It is a crying shame, he said, that more engineers do not occupy public positions that require engineering knowledge.

He urged the continuance of the engineering council, comprised of representatives of the various engineering activities. On this subject he said that the council is beneficial to the various engineer organizations and to the engineers and gives members of the profession an opportunity for greater public service.

The meeting was one of the most largely attended meetings of the organization. R. K. Brown, of the Salt Lake & Utah electric railroad, was chairman.

California Electrical Men Hear Charles P. Steinmetz

Seven hundred members of the electrical industry in San Francisco, most of them members of the San Francisco Electrical Development League, heard Dr. Charles P. Steinmetz, chief consulting engineer of the General Electric Company, speak on the topic "Electricity and Civilization" on Sept. 24. Covering the development of civilization in a rapid manner, Dr. Steinmetz told his audience that the phrase "Do It Electrically" was not merely a trade and sales slogan, but was one which, if followed, would do much for the advancement of civilization. It is his belief that the advance in civilization during the last century was due largely to the use of electricity. A Western Electric public address system was in-

COMING EVENTS

American Institute of Electrical Engineers—
Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

Association of Electragists International—
Annual Convention—Washington, D. C.
Oct. 9-12, 1923

California Industries Exposition—
Exposition Auditorium—San Francisco, Calif.
Nov. 17-Dec. 2, 1923

stalled in the hall to enable all of the audience to hear the speaker. S. J. Lisberger, Pacific Gas and Electric Company, was chairman of the day.

The famous electrical engineer also addressed a large meeting of the San Francisco section of the American Institute of Electrical Engineers on the evening of Sept. 24. His discussion concerning the characteristics of lighting and the means of handling it was particularly interesting to the engineers and their guests who were assembled to hear him talk.

Members of the Electric Club of Los Angeles had an opportunity to hear Dr. Steinmetz advance his theories concerning the "World Problems of the Electrical Engineer" on Sept. 17. Four hundred and thirty of the electrical men and their guests in the southern California city were present at the luncheon meeting at which Dr. Steinmetz spoke.

During the Pacific Coast Convention of the American Institute of Electrical Engineers, to be held at Del Monte, Calif., Oct. 2-5, Dr. Steinmetz will deliver a paper on the "Engineering Problems of the Electrical Industry."

Pacific Coast Jobbers' Meeting Held at Gearhart, Ore.

The electrical jobbers of Portland were the hosts at the quarterly meeting of the Pacific Division of the National Electrical Supply Jobbers' Association held at the new Gearhart Hotel, Gearhart, Ore., Sept. 5-7. The attendance was well above the average so far as the Northwest delegates were concerned, but the attendance from the more distant points was somewhat less than usual.

Closed business sessions were held Wednesday and Thursday afternoons, at which in addition to the usual routine business, two papers were presented. One was by George A. Boring, manager of the Pacific States Electric Company, Portland, entitled "My Competitor"; and the other by Harry Byrne of the North Coast Electric Company, Seattle, entitled "The Cost of Sales Solicitations."

A. C. McMicken, commercial manager of the Portland Railway Light & Power Company, was in charge of the open session held Friday afternoon. It was at this meeting that John A. Laing, vice-president and general counsel of the Pacific Power & Light Company, Portland, delivered an address on the state ownership of public utilities. He cited many cases to illustrate the fallacy that state or municipally owned utilities are more efficiently managed and give cheaper service than those privately owned. Frank Branch Riley, attorney and lecturer of Portland, was the next speaker, dwelling on the importance of the tourist trade.

The social features of the convention were very carefully planned. Every morning was devoted to golf. The usual handicap tournament was played off, resulting in the award of three trophies to S. W. Peterson, sales manager of the Stubbs Electric Company of Portland. He not only won the coveted Deming trophy and the "Old Copper Cup" but a new trophy put up by the Washington Electric Supply Company of Spokane. A "Calcutta Pool" added to the interest of the players. The convention closed with a banquet Friday evening, followed by music and dancing.

Scientific lighting was discussed at a conference held at the Palace Hotel in San Francisco Sept. 20-22. Lighting experts from the Pacific Coast states were in attendance at the meetings which were under the direction of E. W. Garcia, of the Pacific States Electric Company. R. M. Alvord, of the Edison Lamp Works, acted as chairman at the meetings that were held. A large number of salesmen, architects, dealers and men interested in the installation of lighting fixtures attended the conference.

The Electric Club of Seattle has elected the following officers to serve for the ensuing year: Harry Martin, National Carbon Company, president; George Cooley, Cooley Electric Company, treasurer; and Julius Hooper, Rainier Electric Company, secretary. The Electric Club includes in its membership approximately 165 men of the electrical fraternity in Seattle, including jobbers, contractor-dealers, manufacturers' representatives and central station men.

Manufacturer, Dealer and Jobber Activities

H. E. Nelson and Barney Kristopherson have opened the Weber Electric Company at 2249 Washington Ave., Ogden, Utah. Both Mr. Nelson and Mr. Kristopherson have had long experience in the electrical construction and retail business.

The General Electric Company announces its Bulletin No. 43976, descriptive of charging equipment for both large and small users of electric vehicles. The bulletin may be had on request.

Harvey Hubbell, Inc., New York, have recently brought out two new devices of interest to contractor-dealers. One is a new porcelain receptacle, made in 3 1/4-in. and 4-in. sizes, grooved to take shadeholders, and the other is a detachable acorn which will be supplied on all Hubbell pull sockets.

J. D. Wallace & Company, Chicago, have recently brought out a new electric solder pot with automatic control. This pot is particularly adaptable to heating babbitt, white metal, wax and other materials which are slow conductors of heat.



Denver, Colo., according to weather reports, is hot in the summer and cold in the winter and the question is how to be comfortable the year around. J. P. Sprunt, Jr., of the Westinghouse Electric & Manufacturing Company in Denver, has found a way to solve the question in the summer. Heating appliance manufacturers of the electrical industry will solve the question in the winter.

The Cutler-Hammer Manufacturing Company of Milwaukee, Wis., has recently issued its Bulletin No. 3062 descriptive of electric conduction heaters for industrial use. The bulletin covers such applications as metal pots, metal moulds, gluing machines, celluloid dies, etc., and will be furnished on request to the manufacturer.

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has just issued its new bulletin on squirrel cage induction motors. This publication is known as Bulletin 1118-B and will be furnished on request from the nearest office of the company.

P. A. Geier Company, Cleveland, Ohio, has prepared an attractive publicity program for its dealers for the purpose of increasing holiday sales. Particular emphasis is given to the importance of preparing in advance for the Christmas business.

The Electric Automatic Indicator Company, Albuquerque, N. M., has filed incorporation papers with the secretary of state of New Mexico. The intention of the company is said to be the manufacture of electric automatic station indicators.

The Walker Electric Company, 824 Main St., Boise, Idaho, opened its new store recently and employed a novel advertising medium to accompany the opening. Hot coffee, waffles and wafers, all electrically prepared were served and a demonstration held of electric refrigerating machines, ranges and lamp socket devices. Four thousand two hundred and sixty-two persons attended the opening.

The Manhattan Electrical Supply Company has brought out a new radio loud speaker, said to be applicable to all conditions and to work with every circuit, tube or battery that may be employed.

The Electric Controller & Manufacturing Company, Cleveland, Ohio, has issued its bulletin on the new type ZK manual automatic compensator for use with alternating current motors. Starting is said to be greatly simplified by the use of this device.

T. O. Kennedy, vice-president and general manager of the Ohio Public Service Company with headquarters at Cleveland, passed his vacation in Colorado where he was formerly an executive of the Doherty companies.

The Russell Electric Company, Chicago, Ill., has recently increased by 10,000 sq. ft. the area of its manufacturing plant and will use the additional space for the manufacture of electric flat irons.

The Ohio Brass Company, Mansfield, Ohio, has recently added to its line a new type of insulator unit for bus bar and switch use. The units are made in several sizes for varying voltages and several units may be bolted together to form a pillar or switch insulator.

The Reliance Electric & Engineering Company, Cleveland, Ohio, has just issued a new catalog on its induction type motors which contains interesting and instructive data. The catalog is well gotten up and should interest all dealers in electric motors.

The General Electric Company in Seattle, Wash., has leased the site for a repair shop building, the structure to be 60 ft. wide by 120 ft. long, with a crane runway for a 5-ton crane. A 5-in. concrete flood will be laid. The plant will be equipped to make repairs to any kind of electrical machinery. H. E. Plank, manager of the local branch, states that "No manufacturing is contemplated in the beginning, but that eventually the company expects the demand to become such that manufacturing will be necessary."

J. G. Paulson, Los Angeles representative of the A. G. Manufacturing Company, has recently taken over the line of the George A. Gray Company in addition to his other duties.

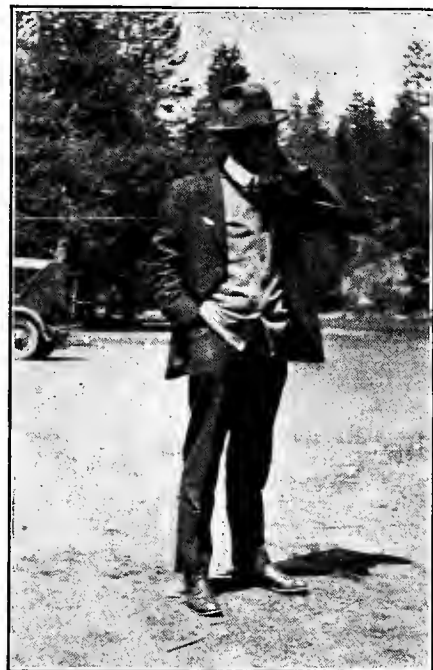
Raymond J. Hurley has been elected a vice-president of the Hurley Machine Company, Chicago.

The Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has issued its second volume of railway operating data for the use and assistance of electric railway executives and operators. The material is presented in easily understood fashion and offers many labor saving suggestions.

The Johns-Pratt Company, Hartford, Conn., has just issued an attractive catalog descriptive of its new line of universal service switches. The catalog also contains descriptive wiring diagrams and other useful data.

The Reliance Electric & Engineering Company, Cleveland, Ohio, has issued a new catalog—No. 1014—descriptive of adjustable speed motors.

Offices of the D. D. Sturgeon Electric Company, Denver, Colo., were entered by burglars on the night of Sept. 9. Electric irons and fixtures to the value of \$232.50 were taken by the thieves.



Fame is thrust upon some people while others acquire it. "Joe" Hobrecht evidently comes under the latter category for it is largely due to his interest in the electrical industry and to the activities of the J. C. Hobrecht Company of Sacramento, Calif., that he has become so well known in California. Mr. Hobrecht's last bid for fame was when he doubled for "Barney" Oldfield at the wheel of his car between Sacramento and the Donner Lake Camp of the California State Association of Electrical Contractors and Dealers.

The Westinghouse Electric & Manufacturing Company has just issued for distribution two new catalogs dealing with street lighting. Both catalogs are fully illustrated and deal respectively with Overhead Street Lighting and Ornamental Street Lighting. Complete descriptive matter is given concerning such accessories as cables, potheads, mast arms, cut-out pulleys, etc.

The Western Electric Company has moved the general sales offices of the Supply Department to the Pershing Square building, Forty-second Street, New York City.

Personals

D. C. McClure, superintendent of the electric and steam heating department of the Denver Gas & Electric Light Company, has assumed the direction of the Rocky Mountain division of the National Electric Light Association. Mr. McClure is one of the youngest men to hold such a position, according



D. C. MCCLURE

to National Electric Light Association records. He was born in Cocksackie, N. Y., May 31, 1890, and graduated from Rensselaer Polytechnic Institute in 1913. He immediately entered the service of Henry L. Doherty & Co. and shortly after was detailed to design and revamp the electrical generating and transmission system of the Denver Gas & Electric Light Company, which included a change from the 2,300-volt single phase system to 4,000-volt three-phase. Following this he was assistant superintendent of the electrical department until entering the army in 1917. Upon his return from the service he rejoined the Denver company as superintendent of the electrical and steam heating departments. In 1921 he was elected second vice-president of the National Electric Light Association divisional organization and in 1922 was elected president with his term commencing July 1, 1923. He is a member of the Kiwanis Club, the Denver Civic and Commercial Association, Doherty Men's Fraternity, and the American Institute of Electrical Engineering.

Charles D. Vail, formerly railroad and hydraulic engineer for the Colorado State Public Utilities Commission, has been appointed manager of parks and improvements for the city of Denver, Colo.

G. C. Ward, vice-president, H. A. Barre, executive engineer, Southern California Edison Company; **K. E. Van Kuran**, district manager, Westinghouse Electric & Manufacturing Company, and **Ralph Hopkins** of the power department of the Westinghouse company were among the prominent members of the industry who attended the opening of the Big Creek No. 3 plant of the Southern California Edison Company.

J. D. Phillips has been appointed office manager of the new Oakland, Calif., plant of the General Electric Company. Mr. Phillips, who was formerly traveling auditor, will have charge of accounting, statistics, payrolls and all clerical operations at these works.

Mark T. McKee, of Detroit, assistant to the president of the American Short Line Association, has been named vice-president of the Salt Lake & Utah Railroad Company, which is also known as the Orem electric line. In his executive capacity with the Short Line Association Mr. McKee has gained a national acquaintance among the operators of the smaller railroads of the country. Mr. McKee fills a place on the official roster of the company made vacant by the resignation of **Ross Beason** nearly a year ago. Mr. McKee's headquarters will be in Salt Lake City.

W. L. Shirey has been appointed district manager of the Cinderella Dish Washer Company, Cleveland, Ohio. Mr. Shirey will make his headquarters in San Francisco.

W. L. Cook, of the Reliable Electric Company, St. Louis, Mo., was a recent visitor in San Francisco, having made a trip to the Coast in the interests of his firm.

A. W. Leonard, president of the Puget Sound Power and Light Company, Seattle, Wash., was recently in San Francisco in the interests of his company.

Charles Nefrey has just opened a new store at Lakeport, Calif., where he will do a general electrical contracting and supply business.

V. L. Crawford, sales manager, Everstick Anchor Company, St. Louis, has just completed a trip to the Coast, visiting the offices of the Baker-Joslyn Company, who represent his company in this territory. Mr. Crawford spent some time at all branch offices of the company at Los Angeles, San Francisco and Seattle.

S. M. Kennedy, vice-president in charge of public relations, Southern California Edison Company, Los Angeles, Calif., recently spent a few days in San Francisco on his return from an extended trip east. Among other places visited during the trip were Montreal, Que., Winnipeg, Man., and Vancouver.

R. J. McHugh, manager of the Los Angeles office and a member of the firm of Garnett Young & Company, has just recently returned from an extended trip east.

J. D. Ross, superintendent of lighting, Seattle, recently gave an illustrated talk on the Skagit project at the Seattle Auto Park club house.

Charles R. Hall, president of the Pittsburgh Piping & Equipment Company, is a recent visitor to the Pacific Coast.

Guy W. Faller, assistant general manager, Denver Gas & Electric Light Company, Denver, Colo., is in charge of the Doherty Training School which has just opened in Denver.

Francis C. Shenehon, vice-president in charge of engineering and construction of the Bylesby Engineering & Management Corporation, has just returned from an extensive inspection of that company's properties in California, Oregon, Washington and Montana. During his trip to the West he visited the El Dorado project now under construction and nearing completion.

P. W. McCauley, of the Russell Electric Company, Chicago, Ill., was a recent visitor to San Francisco. Mr. McCauley is making a trip to the Coast in the interests of his firm.

K. E. Van Kuran, district manager of the Los Angeles office, Westinghouse Electric & Manufacturing Company, has gone to East Pittsburgh, Penn., where he will attend the division managers' meeting of that company. Mr. Van Kuran expects to visit various other plants of the company before returning and will be gone for about six weeks.

W. R. Hutterer, vice-president and chief engineer, Electric Power Equipment Corporation, Philadelphia, Pa., recently spent some time on the Pacific Coast. During his trip he was entertained in Seattle by **Eicher & Bratt**, who represent the interests of his firm in the Pacific Northwest, and in San Francisco by **C. E. Ingalls**, California representative.

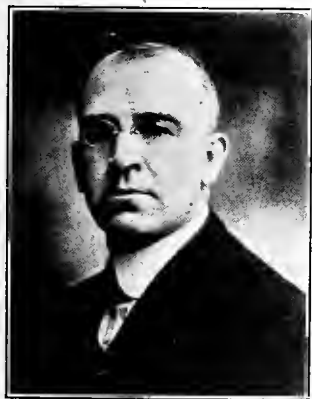
Franklin T. Griffith, president of the Portland Railway, Light & Power Company, has been one of the conspicuous figures of the electrical industry of the West. Mr. Griffith has long taken an active interest in the matter of water powers and their proper conservation and use and was for two years chairman of the Water Power Development Committee of the National Electric Light Association. During this time he devoted considerable attention to the matter of the formation of the Federal Power Commission, spending a great deal of time at Washington, D. C. In addition to his National Electric Light Association activities Mr. Griffith has been an active worker for the Northwest Electric Light and Power Association, having officiated as its president and on various committees. Mr. Griffith was born in Minneapolis in 1870 but moved to California in his early days and was educated in Oakland. In 1894 he was admitted to the bar in Oregon and was city attorney of Oregon City, Ore., for five years. During this time he became interested in the use



FRANKLIN T. GRIFFITH

of electricity for industrial purposes and later became attorney for the Portland Railway, Light & Power Company. His progress with this company was rapid and in 1913 he was elected president. During the years following his election to this office his company has made notable strides in the improvement of public relations and in the relation of the utility to the consumer.

Lewis A. Lewis, sales manager of the Washington Water Power Company of Spokane, Wash., is the retiring chairman of the commercial section of the Northwest Electric Light and Power Association. Mr. Lewis was one of the leaders in the movement to secure a thorough investigation of the electric range situation in the Northwest. Largely because of his efforts the Washington Water Power Company has been acclaimed as the leader in the movement to install electric ranges in the homes of the people in the territory that it serves. At the present time the company has four thousand eight hundred ranges and electric water heaters on its lines, with a total installed capacity of 33,600 kw. and producing an annual revenue of approximately four hundred and thirty thousand dollars. In two campaigns that Mr. Lewis supervised this spring, 745 ranges were sold to consumers of the company. A graduate of the department of electrical engineering of Washington State College, with the class of 1908, Mr. Lewis spent the first few years of his business career in the lumber business and acquired a thorough familiarity with all operations from logging to the production of finished wood products. In August, 1908, he entered the service of The Washington Water Power Company in the engineering department, but his interest in the commercial work had been noticed and in October of the same year he was made industrial engineer. In that capacity he stimulated interest among the managers of local woodworking plants with the result that several of the old plants adopted electric drive, and most of the plants since added have been electrified throughout. Eventually, as assistant commercial manager, Mr. Lewis was able to develop his policy of cultivation of the residential field and progress has been steady ever since. His promotion to the position of sales manager in 1920 was only the fitting recognition of constant and unrelenting effort. The basis of Mr. Lewis' policy



LEWIS A. LEWIS

is creating thorough satisfaction among his customers and so far as household appliances are concerned, he will not endorse anything whatever until he is thoroughly convinced of its merits. If it will be of real benefit to the user, he will push it regardless of its characteristics with reference to revenue, but as is shown by the sale of ranges, he does not overlook that feature. Mr.

Lewis is active in all civic undertakings, being a member of the Spokane Chamber of Commerce and the Spokane Advertising Club. For years Mr. Lewis has been an active member of the Northwest Electric Light and Power Association and has served on many important committees, being at present one of the executive board.

Philip L. Thomson, publicity director of the Western Electric Company, has been elected president of the Association of National Advertisers. His election follows successful service as director and since 1921 as vice-president of the Association. Mr. Thomson began his business career in 1903 following his graduation from Union College and from Harvard University, and for two years he was employed in the Chicago office of the Western Electric Company. In 1905 he went to Kansas City, then became successively manager of the company's headquarters at Pittsburgh and publicity director, in charge of all publicity activities. In the electrical field he has done conspicuous service in the National Electric Light Association and other organizations of the industry.

T. B. Parks of the Los Angeles Gas & Electric Corporation is a recent visitor to San Francisco in the interests of his company.

G. G. Sears has been appointed local representative of the Journal of Electricity at St. Louis, Mo.

H. L. Jackman, of the Western States Gas & Electric Company, Eureka, Calif., recently visited San Francisco. Mr. Jackman has been successful in the application of electricity in the sawmill and lumbering industry in his territory.

Herbert Metz has been appointed advertising manager of the Supply Department, Western Electric Company, New York City. Mr. Metz joined the company after graduation from Penn State University in 1914 and has risen through various positions to his present appointment.

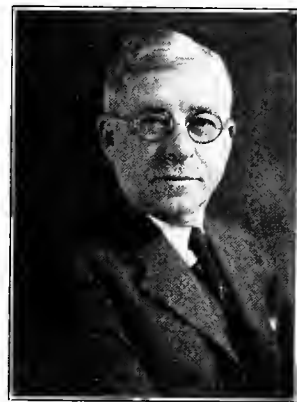
Roi Woolley, vice-president of the firm of Goldman, Carrigan & Co., advertising agency of New York City, is spending several weeks on the Pacific Coast analyzing Pacific Coast market conditions. Mr. Woolley is specializing in the merchandising of electrical appliances. He has been associated with the electrical industry a good many years in advertising publicity work, and was formerly with the Society for Electrical Development, publicity department.

W. L. Maytag, manufacturer of the electric washing machine which bears his name, is making a business trip to the Coast. He has already visited Seattle and Portland, in company with Harold W. Snyder, vice-president and construction engineer of the company, and is at present in California. Mr. Maytag plans to spend some time in San Francisco, Los Angeles and San Diego before returning to the factory at Newton, Iowa.

Oliver B. Lyman, San Francisco representative for Payne, Dean, Ltd., Stamford, Conn., the Pittsburgh Piping & Equipment Company, Pittsburgh, Pa., and the Lettak Fire-Brick Arch Company, Chicago, has moved his office to 700 Call Building.

Charles W. Welsh of the United Power & Transportation Company, of Philadelphia, is a recent visitor in San Francisco.

James A. Cranston, who for three years has been Northwest district manager of the General Electric Company, has been appointed Pacific Coast manager of that firm, succeeding Dr. Thomas Addison who has retired. Mr. Cranston will have headquarters at San Francisco and his appointment will be effective as of Sept. 1, 1923. In 1888 Mr. Cranston joined the force of the Northwest Thomson-Houston Company at St. Paul, Mo., and a year later was transferred to Portland, Ore., as sales agent for that company. At the time of organization of the General Electric Company, in 1892, Mr. Cranston joined that organization at Portland and in 1900



JAMES A. CRANSTON

was made manager of the Portland office. In 1919 he was made Northwest manager and served in that capacity until his recent appointment. He has been one of the leading figures of the electrical industry in the Northwest and has always been prominently identified with its progress. In addition to electrical affairs he has devoted a great deal of attention to civic matters and has been a leader in the various charitable organizations of his section.

S. A. Whitten, of the St. Louis Electric Works, was a recent visitor to the Coast.

Obituary

William Henry Merrill, founder president of the Underwriters' Laboratories, Inc., died in Chicago on Sept. 17. He was born in Warsaw, N. Y., in 1868 and graduated from Massachusetts Institute of Technology in 1889. Shortly after graduation Mr. Merrill went into fire prevention and protection work in Chicago and remained in that line of endeavor until his death. He organized the present Underwriters' Laboratories in 1898 and has since been its chief executive. Under his direction was issued the first edition of the National Electrical Code and, on account of his work in connection with the promotion of safeguards for handling acetylene gas, he was elected an honorary member of the Compressed Gas Association. During the war Mr. Merrill served on the Fire Prevention section of the War Industries Board.

Trade Outlook

San Francisco

Normal recovery from the summer season is noted and new business warrants confidence in the general situation. Collections are fair to good and employment conditions are said to be satisfactory. Building continues despite price increases in materials necessary for construction but there is a feeling that advances may retard the general building program.

Many concerns have increased their plant size and capacity. The local buying markets have had a decided influence on purchases and jobbers report satisfactory orders.

Export business has increased in some lines and shipping has been correspondingly affected.

Bank clearings continue to increase and loans are at the normal rate.

Railroads report heavy crop movements and increased industrial shipments.

Electrical goods are moving at a normal rate with construction material in demand. The material shortage previously experienced in some lines is being overcome by eastern deliveries. There is some advance buying for the holiday season and indications are for a general demand in excess of last year.

Seattle

Every line of industry is benefiting from the Japanese disaster and is also aiding in the reconstruction problem. The movement of rush relief cargo is expected to be followed by a greater movement of lumber, steel machinery, tools, hardware of all kinds, copper and steel ingots and bars. Three or four billion feet of lumber probably will be required, and Northwest mills are planning for their share of this business.

Electrical jobbers and dealers report a very favorable reaction from the Electrical Exposition and Model Home display recently completed in the city. Interest was indicated in all electrical appliances on display, and particular attention was paid by prospective home-builders to the display of electric heating devices, which have not been very widely used in this city. The continuance of a busy construction period, aided by fine weather, has provided a good run of work for electrical contractors in home wiring and appliances.

Collections have been good, and new accounts are being opened more freely.

Los Angeles

Thirty-seven new concerns started business in Los Angeles in the month of August.

Building activities show a falling off from the month of August, which was the record month for the city. Permits for the first fifteen days of September, however, show an increase of approximately 43 per cent in valuation over the same period of last year.

Two records were made in bank clearings during the first half of the month when on one day the clearings amounted

to \$30,761,080.47, which surpassed anything previous. The total clearings for the first half of the month amounted to \$274,698,393.56 which is an increase of 33 per cent over the corresponding period of 1922.

Commerce through the port of Los Angeles showed an increase of 1,702,884 tons in May of this year over the same month last year; with an increase in value of \$24,663,226 over the same period of 1922.

Manufacturers of electrical apparatus report excellent business, while the jobbers of electrical apparatus and supplies note an increase over the months just passed. From all indications it would seem that the approaching months will see the largest business in their history. Electrical retail business is very good and radio sales are beyond expectations, all dealers in this line looking for excellent sales until after Christmas.

Salt Lake City

The crop situation is very favorable. Due to the heavy rainfall in the spring the dry farmers are enjoying a bountiful harvest. In the irrigated sections crops are larger than for many years. The markets are showing signs of improvement.

Sugar prices are strong and the beet sugar factories are promised more prosperity than has been enjoyed by the industry since 1919.

Money is easier and in the agricultural districts conditions are improving.

Trade in general is actively on the increase.

Canneries are working full capacity and will distribute to the farmers approximately \$1,000,000.

Apartment houses, office buildings and homes are being filled as rapidly as they are ready for occupancy.

Mining activity continues and general industrial expansion is resulting in increased demands for electric power.

There is practically no unemployment, and a shortage of common labor exists in some of the metal mining camps.

Spokane

A spirit of optimism prevails and the wheat crop is already moving, with steady deliveries throughout the Inland Empire. The Washington wheat crop is now estimated at 59,000,000 bushels and local flour mills are working full capacity. In electrical jobbing circles it is anticipated that wheat sales will result in marked stimulation of business.

The advance in silver and lead has been reflected in greater mining activity in the Coeur d'Alene district and in British Columbia, and continued production is anticipated for some months. Mining dividends for 1923 are expected to reach a total of \$7,500,000 for the properties within a radius of 150 miles of Spokane.

Shipments for pine mills in July were 18 per cent less than for June, 138,905,000 ft., but the exceptionally large fruit crop has caused heavy demand for boxes and the local manufacturers are working at capacity. Otherwise, the wood working plants have felt a slight decrease in business.

The local packing plants are doing 20 per cent more business than in 1922. The production of steers and lambs in the Northwest has been sufficient to supply the plants, but hog production has hitherto been so low that a large amount of stock has been shipped in from points east of the Rockies. In 1922, only 20 per cent of hogs killed were grown in this vicinity, while this year the percentage will be 35 per cent. For this increase, the low price of wheat is largely responsible. One of the local packers has tried out a most interesting experiment, viz., shipping choice young lamb to New York. It has been possible to effect delivery in 4½ days from Spokane, and the waste and losses incidental to shipping live animals is thus eliminated. The experiment is regarded as entirely successful and this step marks a new era for the West. It must be regarded not only as a triumph for the packer, but also for the railroads which can deliver meat on practically a passenger schedule.

Denver

Early reports of the 1923 harvest in this section are proving unusually encouraging to all lines of business. Country merchants and banks are being relieved of some of the burdens which they have carried for nearly two years.

Local bank clearings are again ascending while postal savings deposits have increased to a new high point, raising Denver from thirty-second place to twenty-fourth place.

Improved window lighting installations are helping the electrical business compensate for the decrease in residence building. Wiring prices are on the upgrade.

Appliance sales, especially heating devices, are commencing to move again after a slow summer. Radiant heaters are already being pushed. Vacuum cleaners and washers are still moving satisfactorily.

Portland

The lumber industry continues prosperous with production about 20 per cent above normal.

Labor supply and demand is well balanced with few exceptions. Construction continues unabated and indications are that the present pace will be maintained for some time. It is estimated that Portland and its immediately adjacent territory is growing at the rate of 18,000 annually. Shipments of wheat from Portland average about 300,000 bushels per day. Crops in general are above the five-year average. Weather conditions are favorable.

The central stations in Portland are experiencing great activity in new business. Extensions are numerous and the loads much heavier than a year ago. Aggressive range sales are on as a result of a cooking school conducted by the Morning Oregonian. Prospects for a big holiday trade are good. Industrial activity is approximately 19 per cent greater than during the same period of 1922.

Journal of Electricity

25 Cents a Copy

October 15, 1923

San Francisco



CONNECTICUT "A-1" DEVICES

The steady expansion of the building program of the West has created rapidly growing demand for electrical devices of quality for both business and residential structures. Corwynne Court in San Francisco is one of many high-type buildings in which Connecticut Devices meet the requirements of quality, long life, and ease of installation. This beautiful structure was wired by the Aetna Electric Co. with our "A-1" Devices furnished by the California Electrical Supply Co.—ample proof of the increasing faith placed in Connecticut material.

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- Switches, Switchboards and Fuses
- Insulating Materials

Journal of Electricity

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C. T. HUTCHINSON, Acting Editor

G. W. BARKER, Associate Editor

J. W. OTTERSON, Assistant Editor

G. C. TENNEY, Managing Editor

ROBERT SIBLEY, Consulting Editor

CLOTILDE GRUNSKY, Contributing Editor

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SAN FRANCISCO, OCTOBER 15, 1923

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"Electrical Christmas" Ideas Appear Nov. 1

CHRISTMAS is the time for giving and necessarily before anyone can give anything it must be purchased. Merchants throughout the world will soon be preparing for the trade that Christmas brings, in order that they may serve their customers who are seeking presents for their families and friends.

The electrical industry, in the past few years, has been coming more to the fore as a supplier of useful and practical Christmas gifts. Money placed in the purchase of electrical appliances has been well spent and the recipient of the gift has been well pleased with the electrical presents which have been so handy, economical to operate and good looking. An electrical appliance is used the year around and the friend who has received a toaster, waffle iron, or percolator has been thanking the donor ever since the gift has been received.

To aid the dealers in the western states that it serves, the Journal of Electricity will publish in the Dealer, Jobber and Sales Agent section of the Nov. 1 issue, a number of suggestions relating to Christmas merchandising. The entire section will be devoted to plans for the development of this trade in order that ideas used by other merchants may be presented to our readers in time for them to incorporate some of them in their Christmas selling campaigns. Two pages will be devoted to the displaying of Christmas windows which have brought business to merchants in many sections of the West. Considerable space will be devoted to the advertising campaigns that have proved successful in the past and which with minor changes can be used to advantage in the coming Christmas season.

The slogan "Give Something Electrical" will carry more weight this year than any of those that have been used before. The entire electrical industry will profit as a result and it is the purpose of the Journal of Electricity to aid in the development of the market for electrical Christmas gifts in every way possible.

McGraw-Hill Co., Inc., New York

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Pacific Coast Representatives

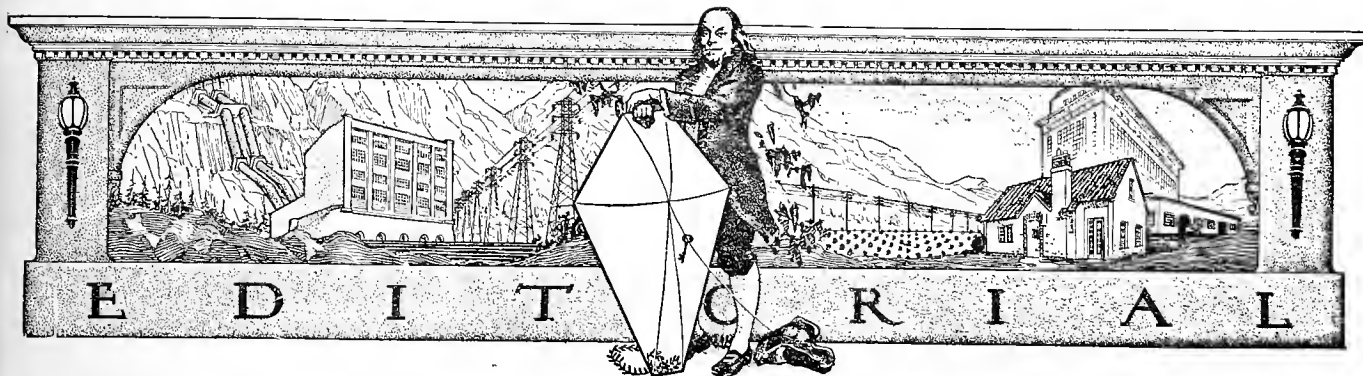
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Los Angeles
340 Azusa St.

Portland, Ore.
781 Commercial St.



Lower Distribution Costs

IN his last message to Congress, Warren G. Harding, late President of the United States, emphasized the importance to American industry of the question of distribution, even recommending that a study of the situation be made by a Congressional committee. Industry in general, and the electrical industry in particular, has recognized for many months the need for better distribution methods. Public opinion, slow to be moulded, is beginning to make certain definite demands. And since public opinion is supposed to rule this country, it is high time that industry should heed the warning. Otherwise it is faced with the possibility of Congressional interference.

THE average layman is not an economist in the strictest sense of the word. Yet when he walks into a store and is asked to pay \$150 for a certain electric labor-saving household device, which he knows has not cost more than \$60 to manufacture, he begins to wonder—not without reason. The dealer agrees that the price is high, but The jobber makes the same admission, assures him that he has taken no profit at all, but The manufacturer declares that he purchases materials as cheaply as possible, employs highly efficient production methods, sells the device at a rock-bottom price, but

BEHIND all of these "buts," one fact remains in the layman's mind. He knows that somewhere between the factory and his home, \$90 has been spent—perhaps misspent. And he knows that this is far too much.

AS another example from a new angle, an enterprising and progressive dealer has figured out that every time he sold a washing machine he paid \$8.22 for the privilege. Again, a central station engaged in merchandising has declared that every appliance it sells causes a red ink entry to be made on its books.

IT is evident that somewhere along the line there is a leak. Either the present distribution "set-up" is wrong, or its operations are most inefficient.

WITH these facts in mind, the Journal of Electricity has made a survey of the situation as it exists on the Pacific Coast. Under its direction, Mr. E. A. Kincaid, a national authority on markets and merchandising, has spent nearly two months in the field investigating conditions. He has uncovered many interesting and enlightening facts. On another page in this issue is the first of the series of articles in which he presents his findings. He has made a study of every phase of the distribution of electrical products on the Pacific Coast. During the course of the series criticisms and constructive suggestions will be offered. It is to be hoped that they may become the basis upon which better methods will follow.

THE publication of this series is an earnest of the desire of the Journal of Electricity to be of service to all factors of the electrical industry. If even a small amount of good can be traced to the information which will be presented in this and the succeeding issues, our efforts will have been worth while.

An Important Aspect of the New National Electrical Code

THE eyes of the electrical industry are turned toward the new National Electrical Code which will shortly be placed in the hands of every man who deals with the installation of electric equipment or the application of electricity in its many various forms. Important modifications and changes have been incorporated in the new edition of the Code. Many questions will arise regarding the interpretation of some of the new rules and the application of some of the old ones.

Anticipating a desire on the part of the industry for information regarding these changes, the Journal of Electricity has arranged with Claude W. Mitchell, electrical engineer for the Board of Fire Underwriters of the Pacific, for a series of articles dealing with the new Code and its interpretation. The first of these articles appeared in the issue of September 15, 1923, and dealt with the history of the Code from its inception to its present place of importance. The second article of the series appears on another page in this issue.

In this article the changes in the muchly discussed and highly antiquated "660-watt rule" are dealt with to great length. We wish especially to call the attention of our readers to the footnote in this section of the Code which recommends the generous installation of electrical convenience outlets so that the maximum use and value of the various household appliances will accrue to the housewife. If this suggestion is followed by the electrical constructionist it will materially increase his profit on any particular job, it will result in the sale of a greater number of appliances, and will instill in the mind of the consumer the real meaning of the service which the entire electrical industry is attempting to render.

Another Noteworthy Achievement in Western Hydroelectric Engineering

THE past fortnight has marked a noteworthy achievement in western hydroelectric development. Big Creek No. 3, the largest hydro plant west of the Mississippi, has been added to the superpower system of the Pacific Coast. This power house delivers to the network of high tension lines which extends virtually from Mexico on the south to Canada on the north, 100,000 hp. in electric energy, ready, at the touch of a button or the closing of a switch, to be transformed into useful work for the betterment of mankind.

This immense block of power increases the capacity of the Southern California Edison Company's system to approximately 500,000 hp., while the capacity of the Pacific Coast interconnected system, both steam and hydroelectric, is raised to the stupendous total of 2,300,000 hp. Here is a record that has no equal in any part of the world, whether it be in installed capacity, in voltages employed or in distances over which energy is transmitted. Truly this is one of the engineering triumphs of the century.

To the mere layman, kilowatts, volts and horsepower have little or no meaning. These terms must be translated into more understandable language. We use an oft repeated illustration in defining this 100,000 hp. in terms of its meaning to agriculture, to industry and to the home. Each time that one horsepower in power plant development in the mountains is added to the transmission lines, twelve acres in unproductive land, worth \$300, will have applied to it 4 hp. in motors for irrigation and general use, producing \$1,000 in new crops each year and thus increasing the value of the land from \$300 to an average of \$2,400. To industry the meaning is equally wonderful. For every 25 hp. harnessed in the mountains an average of a factory and a half starts in one of the great cities, involving a capital investment of almost \$150,000. This allows for the installation of 100 hp. in new motors, offers employment for 33 people and produces more than \$200,000 in new commodities. On the basis of the increase in the use of hydroelectric energy it is little wonder that students of industrial growth are predicting a population of 10,000,000 people for California within the present generation.

Ultimately the development of which Big Creek No. 3 is a component part will total in excess of 1,000,000 hp. No less an authority than Dr. Steinmetz has cataloged the economic development and application of great water powers of the West as the greatest potential builders of agriculture and of industry—in fact, of civilization itself. The sincere appreciation and unreserved support of every loyal citizen is due those men who have fearlessly pioneered in the financing and engineering of these great hydroelectric developments.

Have You an Explanation for This Mystery?

FEW, if any, industries possess the organizations for inter-industry cooperation that this one of ours has. There are national associations, state leagues and local committees whose prime duties consist mainly of the interchange of ideas for the mutual benefit of all concerned. The degree to which the various members take advantage of the possibilities of this spirit of cooperation depends largely upon the individual. Needless to say that these possibilities are often overlooked.

For instance, there is a meeting of an important committee in San Francisco. Members attend in large numbers from cities 500 miles distant and even farther. Local committee-men, through some inherent peculiarity, fail to recognize the importance of the sessions and sit at their desks listening to the arguments of some glib salesman, rather than hang out the "Gone for the Day" sign, attend the meeting and participate in the discussions. The same would be equally true were the sessions held in Los Angeles, Seattle, Denver or Salt Lake City. There has always been a preponderance of out-of-town members, with but a paltry representation of local committee-men.

This is indeed a shameful—almost inexcusable—situation. It cannot be explained that the interest

displayed by the out-of-town men in attending is due to the fact that they are making a vacation party out of the trip. Their active participation in the discussions overrides such a statement. Nor can it be excused on the grounds of lack of interest on the part of the local men for they will be found among those present at the next meeting held outside their own territory. This is a condition that demands serious thought and attention. It is unbelievable that any man would overlook an opportunity to benefit both his business and himself, yet such seems to be the case.

Guiding the Development of the Industrial Heating Load

ELECTRICITY for heating is engaging the attention of the entire industry today. Manufacturers are devoting increased attention to this field of application and are constantly improving the design and efficiency of equipment. Central stations are interesting themselves to a much greater extent than ever before in the possibilities of electric heating and are rapidly recognizing its value as a revenue producer with a consistent and desirable load factor.

Commercial and industrial heating is rapidly developing a load that will apparently equal or exceed the motor load and the revenue per kilowatt-year bids fair to become conspicuously high in certain sections. Commercial applications include bake ovens and office and building heating. Industrial applications include electric enameling ovens, steel and brass furnaces, heat treating furnaces, fruit dehydration, sherardizing, melting pots, etc.

This load has been developed, in many cases, in spite of and not because of the power companies. In view of the very persistent growth of electric heating it would certainly seem advisable that this growth be intelligently guided and that equipment be properly engineered.

A New Opportunity for Cooperation Within the Industry

COOPERATION is the watchword of the day. It is preached from the housetops and blazoned forth in the columns of the press. It is the "sine qua non" of modern business. It is used and abused; handled and mishandled. In the electrical industry its effect has been felt in many directions, but there are those who believe that it can be developed even more extensively for the good of all concerned.

One very splendid opportunity for closer cooperation is offered to power stations and contractor-dealers. Perhaps no two branches of the entire industry are so closely allied; interwoven, almost, in their relations. The central station is, in reality, the heart of the industry. Without it there could be no electrical industry whatever, for, were no current generated, there could be no application of energy and lack of application would mean no field for either contractor, dealer or manufacturer.

On the other hand, the contractor-dealer is just as essential. Without the man who specializes on wiring, installation and merchandising, the central station could not develop so rapidly or so well. Its

problems would be more complex and its relations less satisfactory. The contractor-dealer is one of the chief mediums for shaping public opinion in his locality and in times of need has been found to be a staunch friend.

The central station can offer to the contractor-dealer a corps of highly trained experts and can often extend to him assistance which he cannot get elsewhere. Particularly is this true of engineering and technical advice. The power company has a very definite common interest with him in seeing that installations are standard in character and of such a nature to encourage the use of energy consuming devices—which in turn means the greater sale of appliances and apparatus.

It is therefore logical and self-evident that, with this common interest, and a better understanding of their mutual and individual problems, both central station and contractor-dealer could function more efficiently. Here indeed is an excellent opportunity for the practical application of the letter and spirit of cooperation.

A Timely Questionnaire Regarding the Conduct of Your Business

PERTINENT queries about the conduct of a normal business are contained in a quiz sheet which has been prepared by the United States Chamber of Commerce for the purpose of better enabling a merchant to check up the operation of his business. While the questions were not prepared particularly for the electrical contractor-dealer, they apply admirably to the conduct of his business affairs. Look over the following questions. Answer them truthfully. Then see how far below 100 per cent your business measures.

1. Do you keep a "purchase account" that shows total of all goods bought?
2. Do you know what you save actually by discounting bills?
3. Do you know what it costs to buy goods?
4. How often do you take stock?
5. Do you figure stock at cost or selling price?
6. Do you make allowances for depreciation and dead stock?
7. Do you know what you owe?
8. Do you make depreciation of fixture and delivery equipment?
9. Do you know what is due you?
10. Can you furnish your bank a financial statement at once?
11. Are collections made as rapidly as accounts increase?
12. Do you know what it is costing you for allowances for customers?
13. How often do you make up a "Profit and Loss Account"?
14. Into how many separate accounts are your expenses divided?
15. Do you own the building in which you do business?
16. Do you charge rent therefor?
17. Do you charge your own salary as an expense?
18. Do you charge interest on money invested?
19. Do you know the percentage of expense to sales?
20. If fire took place, could you from your books give a complete statement of all accounts?

This practice of checking up on one's business operations every once in a while is a highly profitable one. Were it followed more often there would be less call for the sheriff and the red flag and more call for an income tax expert.

CURRENT COMMENT



Men in the electrical industry are prone to overlook some of the more serious aspects of the municipal ownership wave which seems to be sweeping the Pacific Coast at the present time.

Some Highlights Regarding Public Ownership Apparently few communities are safe from the socialistic propagandists who would take these privately operated but publicly regulated utilities out of the hands of those men who have made such a phenomenal success of their development and operation for the past three decades and place them at the disposal of the politicians.

During the past two weeks there have been some interesting developments up and down the Coast. Vancouver, B. C., Aberdeen, Wash., and Stockton and Orland, Calif., are among the latest municipalities to seriously consider entering the power business.

In Vancouver a special report has been filed with the city council by J. G. Kerry, an engineer engaged for that purpose, covering the feasibility of the city entering the power business. He recommends the erection of a 35,000-hp. plant on the Cheakamus River with a later development on the Fraser River. He estimates the cost of the development at \$7,000,000. He further recommends that the city should petition the Dominion government, asking that certain water powers be set aside for the express use of the city at any time it should so desire. In his report, the statement is made that power can be delivered to the people of the city at a cost of less than 3 cents a kilowatt-hour, where they are now paying the B. C. Electric Railway Company, Ltd., 8 cents.

The chief engineer of the City of Tacoma, which already has municipal ownership of the power business, has recommended to the city of Aberdeen that a site on the Wynooche River be immediately developed to supply the power demands of that city. A total of 27,000 hp. is available. Business men of the city have endorsed the project, providing it can be financed, and the mayor has stated that finance companies have already signified their willingness to take the bonds, provided they are issued.

Orland, Calif., has been discussing municipal ownership for several months. The city has been influenced by the action taken by the neighboring city of Redding. This latter place recently purchased the distribution system of the Pacific Gas and Electric Company within the city limits and has been distributing power for several months. Book profits have been built up to show that considerable revenue

has accrued from this operation. Orland has become filled with the glamour of these reports and is now endeavoring to follow suit. A committee has been appointed to study the situation and to obtain from the State Railroad Commission a valuation of the power company's distribution system.

The city manager form of government has recently been adopted by Stockton. Sacramento, a sister city which has been operating under this form of government for several years, has determined to try its hand in the power business. Stockton, not to be outdone, has started a movement for securing data which will enable it to do likewise.

Several highspots in the situation as it exists in Washington at the present time as regards the Water and Power Act which is being sponsored in that state, were brought out in an informal discussion with several engineers at the recent convention of the A.I.E.E. One very able engineer expressed an opinion that unless immediate steps are taken by the utilities to combat the wave of favorable opinion which the propagandists are creating, the measure will become a law. He expressed the opinion that the eastern section of the state would vote against the measure and cited as an example the reception which the people of Spokane gave an ordinance setting aside several thousand dollars for studying power possibilities in that vicinity several years ago. The ordinance was snowed under and since there have been no further murmurings for municipal ownership.

In Tacoma, the Water and Power Act is also liable to meet with little approval as the people seem perfectly satisfied with the present operations of the municipal system. It is argued that the voters will be loath to turn over to outsiders a development which appears to be making a suitable profit for the city.

The opinion was expressed that in Seattle, exactly the reverse would be true. Rumors have spread that the reason for the proposal of the Water and Power Act was to enable this city to secure outside aid in financing what would otherwise be a fair-sized "white elephant." In the discussion of the situation, the statement was made that Seattle and vicinity are the logical localities for a good-will campaign on the part of the public utilities, if they would defeat the bill.

Valuations of the distribution systems of the Pacific Gas and Electric Company and the Great Western Power Company have been secured by the City of Sacramento from the State Railroad Commis-

sion. The values set by the commission exclusive of severance damages are considerably in excess of the estimates made by the city engineers. However the city is not deterred and is going ahead with its plans. The following paragraph from an editorial in a recent issue of the Sacramento Bee is exemplary of the attitude in that city:

California's fight is hard enough; but it is only a one-stage affair. It involves no coal, and does not necessitate the fighting of two sets of monopolistic interests. It is simply a question of getting the sources of power into the hands of The People.

This will be hard enough; but it has got to come sooner or later. Electric power and public ownership of it are two inevitable developments of the next few years.

Any other sort of power is wasteful, and any other sort of control has long since been proved politically and economically undesirable.

In bringing about the change of control California will have to pay a high price for the mistake of having allowed that control to get away from her in the first place. But at any rate, she will not have to pay as high a price as parts of the East where there is no water power.

Commenting on the statements made by Dr. Steinmetz during his recent visit to the Coast, the Bee says:

With regard to almost all public utilities, there is theoretically much to be said in favor of monopoly—singleness of possession and operation, far better suited to public ownership for public benefit than to private ownership for private profit.

The curse of private ownership and monopoly is the disposition to domination and corruption of government, the courts and every sort of regulative body. It invades every branch of the body politic; seeks to control all appointments, nominations and elections to office, from chief of police to the presidency of the United States, and also the membership of every legislative body, from city councils to the congress at Washington.

So, if with relation to electrical or other public service, the choice finally must be between private monopoly for profit, or public ownership for public benefit, The People of California scarcely could hesitate which to choose.

A hopeful view of the situation throughout the country is taken by the Daily Commercial News (San Francisco) in an editorial entitled "Getting Tired of It." After summing up the questionable actions on the part of the utilities during the early history of the business, which tended to place them in a bad light, this editorial says:

While these things are not fresh in the minds even of those who experienced them, they are not entirely forgotten and they form readily a foundation upon which may easily be erected the demand we have from time to time seen in play for public ownership of public utilities.

The generation that is now coming upon the scene is not very particular one way or the other.

It has no unpleasant memories to serve and no ancient grudges to satisfy.

And so there is a better opportunity to reason with it, if it may be induced to give up the time for the presentation of facts.

A very hopeful indication of capacity to judge fairly is afforded by the defeat of the Water and Power Act, a piece of Socialism which would have plunged the credit of the State into ventures the outcome of which could not be regarded as other than questionable at best.

That another attempt will be made to foist this upon the public is reasonably certain; meantime, we have the example of communities giving up their public service ventures and returning to the more reliable and also more reasonable private service.

It is stated that the day of the municipally-owned light and power plant in the small town or city is about over. It costs too much to operate these plants.

The transmission line has been the weapon effectively employed by the privately owned concerns to turn the city from the municipally owned plant.

And the merit of it all is that, as demonstrated, it has saved the consumers and the taxpayers thousands of dollars.

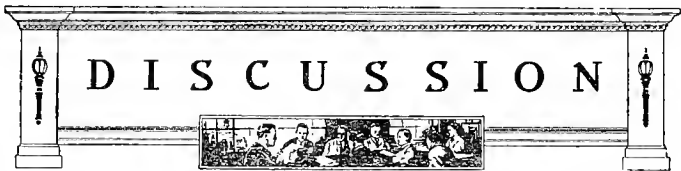
The foregoing from a country publication shows that the idea is being generally accepted, and that the dreamers are at last on the defensive.

In one state many small towns have abandoned the contest and what applies in one state is certain to become the rule, especially since the big transmission line is now the regular order, reducing expenses of generation and other incidental costs.

It is pointed out that even Organizer Townley of North Dakota economic revolutionary fame is impressed with the futility of farmers trying to conduct such highly specialized industry as meat packing, for instance.

And so the dawn of larger use of reason seems to be upon us and the fooling of the people, while not very difficult—

Is more so than it was when the renowned Lincoln made his now famous declaration about it.



From the Woman's Standpoint Electric Heat Possesses Many Advantages

To the Editor:

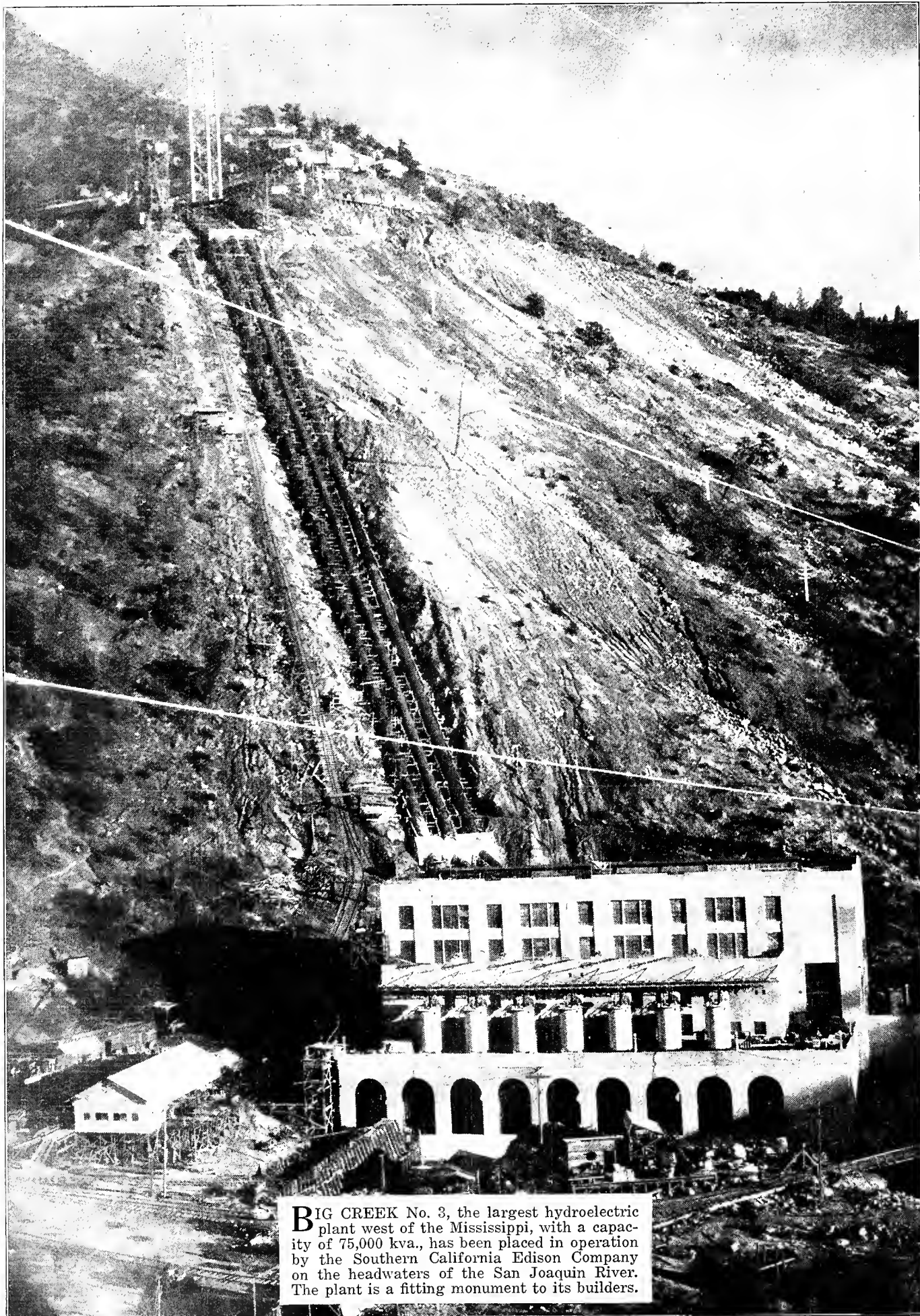
Sir: We, a certain stenographic department of one of your contributing firms, note the cover on your October 1 number of "Journal of Electricity" and are of the opinion that no female, as scantily clad as the pictured one, could sit so near a Majestic electric heater and not feel the direct warmth more keenly.

With no intention of too severe a criticism, we remain,

Yours respectfully,
"US GIRLS."

By One of 'Em.
Room 733 (?)
San Francisco, Cal.
Oct. 4, 1923.

[Editor's Note: We are glad to note that women are so quick to appreciate the many advantages of electric heat. When first shown a proof of the cover advertisement mentioned above, we were quick to grasp its appeal to the male of the species and are equally pleased to learn that its attraction is not lost to the female. We might add that it is not our custom to publish anonymous communications, but since a little detective work on the part of the office boy resulted in the discovery of the identity of the writers, we are able to offer the letter to our readers without apologies.]



BIG CREEK No. 3, the largest hydroelectric plant west of the Mississippi, with a capacity of 75,000 kva., has been placed in operation by the Southern California Edison Company on the headwaters of the San Joaquin River. The plant is a fitting monument to its builders.

The Distribution of Electrical Products on the Pacific Coast

By E. A. Kincaid

Associate Professor of Commerce, McIntyre School of Commerce, University of Virginia

IN this and a series of subsequent articles the writer proposes to discuss the conditions under which electrical products are now marketed and merchandised on the Pacific Coast. The term products is used because it best covers the various lines of electrical goods that will have to be given consideration. When the word is used the reader will understand it to include appliances, fixtures, schedule materials, materials used in the generating and distribution of current, materials sold to transportation and industrial corporations, and in fact everything that is used in connection with the generation, transmission and application of electricity.

The justification or explanation for this series of articles grows out of the desire of the Journal of Electricity to serve all factors in the electrical trade. While the discussions will generally be written from the point of view of the manufacturer of electrical products for purposes of a sound perspective, it is hoped that constructive suggestions will be made for the benefit of all middlemen in the electrical field as well as consumers. The Journal has but one motive—to serve all interests in a constructive way. Often criticism brings about reforms of a constructive character and when anything is said in a critical spirit it will be for the purpose of stimulating and suggesting improvements. However, the chief purpose of the series will be to describe the electrical situation as clearly and accurately as possible so that he who runs may read.

There are some fundamental principles that bear upon the electrical industry along with all other industries. These must be stated, since they constitute the ground work for the consideration of the several subjects which will come in for more or less detailed treatment. Let it be remembered that there has been an industrial evolution in the United States the significance of which must here be taken into account. During the period ending about 1880 the means of distribution were developed out of proportion to production of goods. Markets sought goods. As a result there was concentration upon production to such good purpose that the period following 1880 may be characterized as one in which distribution lags and production exceeds the mechanism of distribution in development. During the first period a seller's market existed with competition mostly on the side of the buyers. Since 1880 the situation has in

THIS is the first of a series of articles on the marketing of electrical products of all classes on the Pacific Coast. Realizing that the question of distribution is one of the most important facing the electrical industry, the Journal of Electricity took advantage of the presence of Mr. Kincaid on the Pacific Coast during the summer and induced him to make a field survey of the situation. This article deals with the potentialities of the Pacific Coast market.

general been reversed and now manufacturers face a buyer's market with competition mostly on the side of the sellers,—the manufacturers.

The results of the general situation which has prevailed in the industrial world since 1880 are significant. The economic aspects of markets and marketing have, for the most part, been slighted. Merchandising has received but slight attention until recent years. Suddenly much fault be-

gan to be found with the mechanism of distribution for all sorts of products. While more noise has been made about the share of the consumer's dollar that goes to the middleman as compared to the share that goes to the farmer, it does not follow that the problem is any less important in the field of raw materials and manufactured goods. The fact is that manufacturers in all lines are now giving deep consideration to the marketing system by which their goods move to the ultimate consumer. There is now in process a fairly widespread effort to put the machinery of distribution on a footing that will compare favorably with production.

The manufacturer is studying distribution out of sheer necessity. The unit cost of factory production depends upon the volume of output. The volume of output, in turn, depends upon the absorbing power of the market. The manufacturer seeks to achieve that scale of operation that will bring his costs per unit of output to the lowest possible point. His power to do this means that he becomes a more effective competitor and his chances of success are thus vastly increased. In passing it might be stated many manufacturers have failed to locate just that point where land, labor and capital are most favorably combined. To put the matter another way, many have over-expanded and society has thereby been burdened with undue cost of production. Over-development of a given plant is just as burdensome as under-development in that the lowest cost per unit of output is not attained at either stage. Moreover, the tendency of manufacturers to expand until the lowest cost per unit of output has been attained has led to over-production in many lines.

Relation of Distribution to Production

It must be remembered by manufacturer, distributor and consumer, that one of the great driving forces, if not the greatest, is the effort of the manu-

facturer to achieve that volume of sales which will permit him to operate his plant continuously and thus lower his unit cost of production. This means that the chief pressure that is now being brought to bear on our distributing system originates in the fundamentals of manufacturing economy. There is yet another influence which plays upon the manufacturer. He must accept this proposition, that his goods are not really produced until they are sold over the counter or are in the hands of the ultimate consumer. From this it follows that the actual cost of production runs concurrently with the process of distribution. The heavier the burden of the mechanism of distribution the greater the costs of distribution to ultimate sale. To give each middleman the margins which will enlist his best effort may mean a final selling price that makes the manufacturer's product a luxury when, for the sake of his best interests, it ought to be a staple. One of the chief purposes of modern advertising is to take goods out of the luxury class and put them in the staple class. The achievement of this result means a broader market. The broader the market the more stable it is. The greater the stability of the market the less the risks of industry. What manufacturer is not interested in the progressive minimization of the risks to which his invested capital is subjected?

Definition of Marketing and Merchandising

The manager of the distributive system of one of the great electrical manufacturing concerns defines marketing as dumping goods on to the jobber, while merchandising is held to mean selling to the user. This usage has the merit that the terms marketing and merchandising are distinguished. Too often they are used synonymously and thus make for confusion. For the purposes of this series of discussions a somewhat different meaning will be given to these terms.

(a) Marketing will be used to mean the working out of the route or channel by which goods shall move from the manufacturer to the user. (b) Merchandising will include all those various practices by which the movement of goods through a given marketing channel will be facilitated.

When the marketing process has been worked out, the manufacturer has still to confront the merchandising policies of the middlemen that he has decided to make use of. These policies must be watched. They have to function if the marketing system is to meet the tests. There are still many manufacturers who think of their distributing problems as ending with the jobber, if it so happens that they sell direct to jobbers. Thinking business men know that such a point of view is notable for its weakness. Goods are sold when they are sold to stay sold and in the hands of the user. It is not inaccurate to say that up to that time mere distribution has been going on. One of the outstanding problems today is to find a route to market such that every middleman made use of shall be a real merchant.

One of the chief explanations for the present tendency to break away from old marketing meth-

ods arises from the desire, the necessity, of finding middlemen who have real merchandising ability. This situation has been brought to the fore by the competition of manufacturers, by their determination to break into the market and to hold such portion of that market as they have been able to grasp. What does a manufacturer care about the orthodoxy of his marketing methods unless they give him the necessary volume in sales? What does he care about being "regular" with the trade unless being so will permit of the successful operation of his plant? Some of the most vehement "regulars" of today were at one time most highly irregular. The ethics are made to fit the economic forces that have to be met. It has always been so and it bids fair to remain so.

In the opinion of the writer all the fuss that has been made and is being made about being regular has its amusing side. As long as there are manufacturers and middlemen who try to set standards of regularity, there will persist an opportunity for irregularity. The existence of the former makes room and opportunity for the latter. If by being irregular a manufacturer can live and push on, then the economic force that makes for his survival consists of his being irregular. The writer does not wish to be understood as saying that cooperation to bring about certain standards of business practice is not a good thing. It is a good thing. At least it may be made so. But this fact remains to be confronted; a weak and struggling manufacturer will find any route to market that will give him the volume of sales essential to his industrial life. The route to market that meets this test is for his purpose highly ethical. The only test of what is ethical in the business world is the test of what is economically justifiable.

Aspects of Distribution

It is the purpose of the writer to bring out the marketing methods that are used by eastern and other manufacturers on the Pacific Coast and then to discuss as fully as may be the merchandising policies that are in vogue. The discussion of these two main aspects of distribution will, it is hoped, throw light of a constructive character on the problems of the electrical trade of this great region. But quite regardless of the region that may be under consideration let this fact be kept well in mind—the manufacturer of today must choose whether he will function as his own distributor from first to last or bend his energies to help the middlemen function. To those of you who are following the tendencies of the times it is enough to say that both methods are being followed.

It is known that one large manufacturer has opened a number of retail outlets. Still others contemplate similar action. Of course it is said that these are mere service stations such as the Singer Sewing Machine Company and other concerns operate and that it is not in any sense the faint beginnings of a general invasion of the retail field. Granted. But this point remains for consideration; suppose this or some other manufacturer should discover the existence of unavoidable economic evi-

dence that it could conduct its own retail distribution more efficiently than any one else could do it for them, what will be the upshot of the matter? I am not saying that any such discoveries will be made or that they are being sought, but I am saying that economic forces are going to drive manufacturers into those marketing and merchandising methods that prove to meet their problems best and, moreover, **who is to say what discoveries will be made** by some unbiased and truth-seeking thinker among the electrical manufacturers of today?

It may well be that I will be charged with being academic and theoretical. If so I shall not be annoyed for any such first-hand impression is sure to melt away before I am through with these discussions. But suppose I am theoretical! Just let me say that the manufacturers who are going ahead today are men who have worked out theories and then tried them out.

The field of practical business is today the greatest laboratory for experimentation that can be found. New ideas are being tested every day and it is in just this way that progress is being made. Henry Ford, the much-quoted and abused, was a man with a theory that worked. So was Thomas Edison and so were, and are, many others. There is no field so full of romance, the romance of actual life and achievement, as the field of everyday economic endeavor. Many a successful business man is in the game because of its lure, rather than merely for the sake of the money that is to be made. The so-called hard-headed business man has been found to be a man of many sides, generally of high intelligence and certainly interesting. Such are the experience and impressions of the writer respecting the leading men in the electrical field on the Pacific Coast.

The United States is so vast a country that one cannot readily generalize concerning it. The problems of the electrical industry are likewise so great that one dare not generalize respecting them. The manufacturer's problems of distribution possess certain well defined general aspects which might be described as national in scope. But since the country is divided into certain fairly definite geographic regions or provinces and conditions in these, in turn, very materially influence industrial and economic activity, it seems at once logical and wise to examine the problems in the electrical field from the point of view of a particular province at a time.

Definition of Pacific Coast

The Pacific Coast is a great geographic province in itself. Its industrial organization is vastly affected and largely determined by definite geographic controls. The great mountain ranges that for so long isolated the West from the rest of the country have been and are the determining geographic factor in the economic development of the region. These mountains contain relatively few and insignificant deposits of coal, but they provide an immense resource in the form of water power. It is true that there are notable oil fields but it is also true that power from this source cannot last. The industrial future of the Pacific Coast as a manufacturing region

depends upon the conservation and use of its water power resources.

From the point of view of the manufacturer who (a) seeks access to the markets of the Pacific Coast or (b) the manufacturer who seeks to broaden his grip on the markets with which he has already made a contact, just what is the Pacific Coast? For our purposes the Pacific Coast must be defined as the three coastwise states of Washington, Oregon and California, together with the hinterland that is naturally tributary to the distributing centers located in these three states. By the terms of this definition the Pacific Coast becomes a rather extensive region. For this reason it is well to refer to the Pacific Coast as the Pacific Coast territory in just the sense that a manufacturer would use the expression when blocking out the distributing regions for his product. When the established methods of doing business in this great section are taken into account and the various ramifications of distributing agencies now long established at seaport cities are considered, the Pacific Coast territory appears to be a region including eleven states, forty per cent of the area of the United States and about eight per cent of its population. In terms of water power resources the situation is as follows:

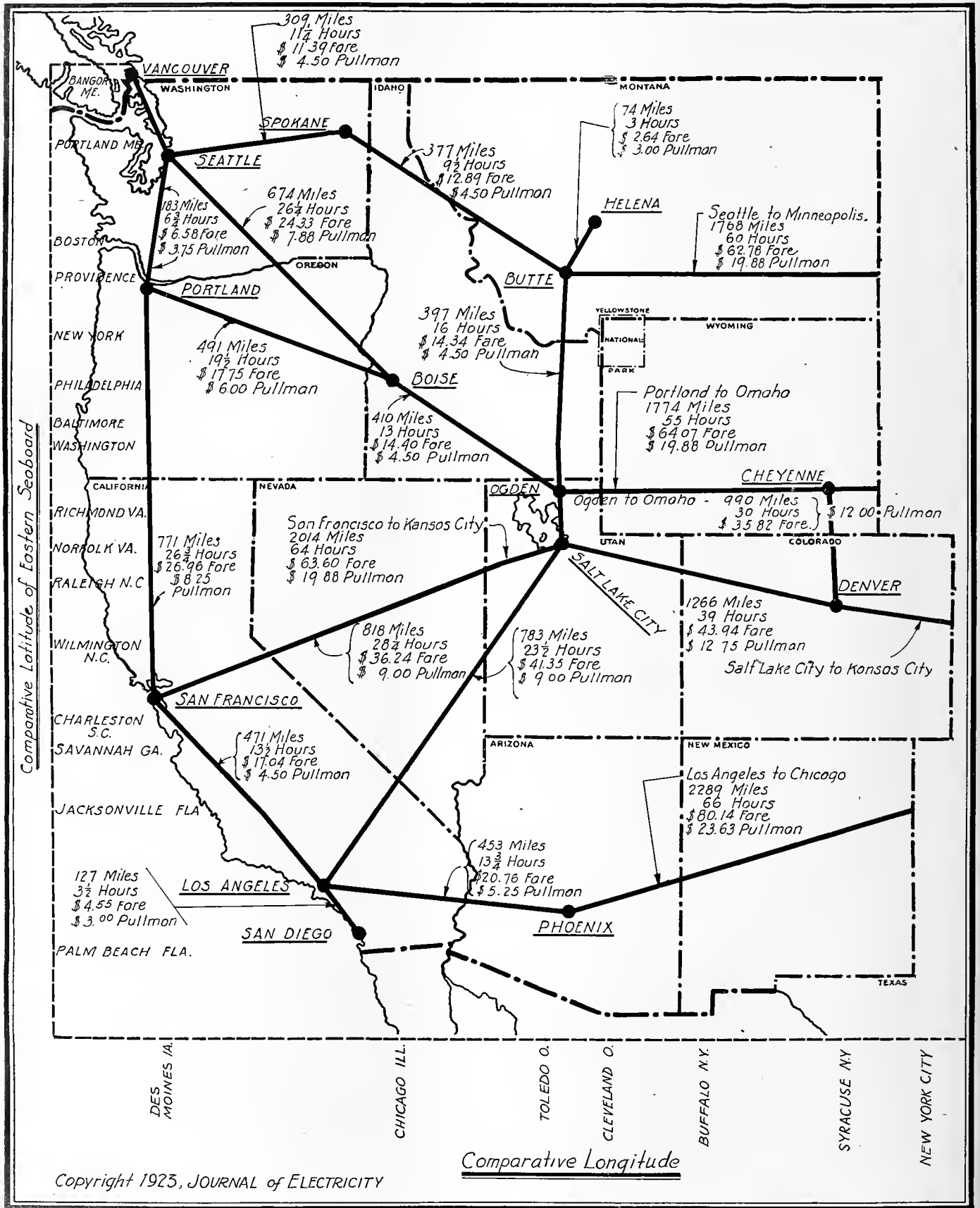
Atlantic States	9,348,000 hp.
Central States	7,360,000 hp.
New England	1,951,000 hp.
Pacific States	40,701,000 hp.

Since it is estimated that the oil deposits cannot survive the next fifty years and since the coal is generally soft and comparatively unimportant in extent, it must be clear that the future of the Pacific Coast depends, to a marked degree, upon the development of hydroelectric power. Viewing matters in terms of the long run, what more persuasive data are needed to convince electrical manufacturers of the importance of entering the field early and building up distribution there on sound lines?

Analysis of Coast Conditions

But let us consider the existing inducements to a sound understanding of Pacific Coast conditions. These need to be well considered, for the Pacific Coast is largely **terra incognita** to the eastern manufacturer of electrical goods. The subject is of particular interest to him because the great bulk of all electrical goods now being marketed in the Pacific Coast territory is manufactured in the East. There are definite reasons for this situation. The manufacture of electrical products first developed in the East because of those conditions which, in general, make for localization of industry. The momentum of an early start, ready access to raw materials, availability of an adequate supply of skilled labor, abundance of transportation facilities and relatively short hauls to numerous jobbing centers are factors that must be taken into account here.

While it is true that the bulk of the electrical goods now being distributed on the Pacific Coast is produced in the East there are a few instances of manufacture of electrical goods in the West. Moreover there is reason to expect this industry to ex-



The Western Market for Electrical Products

With 40 per cent of the area and but 8 per cent of the population of the United States, the West presents a peculiar problem for the distribution of electrical products. Yet it is one of the most fertile markets. It possesses 17 per cent of the total number of wired homes. It uses 20 per cent of the central station electrical energy, has the low-

est rates for energy and possesses two-thirds of the water power resources of the country. On top of this it has 52 per cent greater per capita wealth than the rest of the nation. The above map gives some idea of the major distribution centers, the connecting routes and the time and expense required in covering this territory.

pand there. The Pacific Coast territory now has a great development of hydroelectric power; there are great power resources available for development, which is certain to come at no remote period; high-tension power transmission lines have reached a high state of development and power is now within easy reach of the centers of population where manufacturing is now developing; climatic conditions are favorable for all the year around production; oriental and South American markets are readily tapped from Pacific Coast ports; the population is growing rapidly and it is educated to use electricity in all available ways. These are considerations which form a premise upon which one may reasonably build the faith that ultimately there will be an electrical manufacturing industry on the coast. The erection of branch factories on the Pacific Coast would even now go far to remove some of the transportation and distribution problems that exist for eastern manufacturers doing business in the far West. The exact nature of these problems will be brought out hereafter.

Speaking of conditions as they are, the most outstanding aspect of the Pacific Coast territory as a market for electrical products is the ignorance of eastern manufacturers concerning it. A corollary of this fact is another, that manufacturers' representatives on the Pacific Coast are generally unanimous in their opinion that their eastern principals are not well informed as to Pacific Coast conditions. They are afflicted with a vagueness concerning the region which is clearly the result of remoteness. It is the hope of the Journal of Electricity that this series of articles will be a contribution in the direction of alleviating, if not removing, this situation. In this connection let me say that there are certain outstanding facts which must be taken into account in making an estimate of the Pacific Coast as a market. Furthermore, these facts play a large part in explaining the present organization of that market, the methods of distribution in vogue there and the efficiency with which they function. The facts that I allude to are as follows:

Area in square miles.....	1,189,140
Population	8,900,585
Jobbing Centers	12
Wholesale outlets for electrical appliances	69
Retail outlets for electrical appliances.....	1,900

Wired homes make 17 per cent of the total number of wired homes in the United States, or a total of 1,414,200. From this fact it follows that the West is the most highly concentrated electrical market in the world.

The West has 52 per cent greater per capita wealth than the rest of the United States.

Over 20 per cent of the central station electrical energy developed in the United States is used in the West.

The average cost of electricity to the consumer is 1.36c. per kw-hr. and this is lower than for any other section in the United States.

The West has forty million of the sixty million horsepower of water power resources in the United States.

Add to these facts the following considerations: Eastern manufacturers can reach the centers of population in this great territory either by land or water transportation routes. Distribution is now

largely dominated or controlled from the great ports of Seattle, Portland, San Francisco and Los Angeles. The electrical trade is well organized and in the hands of an exceptionally able and progressive body of business men who know the industry and the country they serve. The distances between jobbing centers is great when compared with conditions in the East and this is one factor which must be taken into account in working out a marketing system for the Pacific Coast territory. The significance of this factor will come up for fuller treatment hereafter.

With these general considerations in mind the writer proposes to take up the actual distributive system as it now exists on the Pacific Coast and describe and account for this system in the next paper which will be published in an early issue.

An Opportunity for Realtors

IN this day of keen competition among builders and real estate sales agents every effort is being put forth to add to a house those things which will make it a home and will increase its salability. Many real estate operators have been quick to take advantage of the possibilities of electrical equipment and have gone far in the electrification of their properties. This equipment has now reached the point where the all-electric home is no longer a novelty but is instead in constant demand. Probably no other single thing which has been introduced into American home life has so quickly and so thoroughly been accepted by the public as has electric application, and certainly any house now constructed and not well equipped electrically is a very great liability and not at all an asset.

Some realtors have not yet taken advantage of the sales possibilities of electrically equipped houses to the fullest extent available. Many have equipped their buildings with splendid apparatus and have made adequate provision for the use of electricity but have, strangely, failed to capitalize on the equipment in their advertising and other publicity. It has remained for a home owner in Denver to make a real feature of this equipment in his advertising.

6-ROOM BUNGALOW, 2-CAR GARAGE 210 S. HUMBOLDT

Tile bath with built-in tub. Large rooms thruout, elaborate electric system with finest fixtures, oak floors, colonnade arch, linen closet, pretty fireplace. The quality of this place will impress you. Near Steele school, Washington park and boulevard. Built by owner for home. South 6332J.

The advertisement reproduced above shows how he makes good capital of an adequate electrical installation and uses the electrical possibilities to assist in the sale of his property, particular emphasis being placed on the fact that the home is wired for the convenient use of appliances. Floor plugs and other convenience outlets make this possible. The adver-

NOT FOR SALE

Our service is yours for the asking. We'll show you how a home, new or old, should be wired—no charge or obligation.

Electrical Co-Operative League

Champa 7273

301 G. & E. Bldg.

tisement of the Electrical Cooperative League is typical of the service which is freely offered by the entire electrical industry to those who will avail themselves of it.

Potential Business in Store Lighting

By H. H. Allison

Illuminating Sales Engineer,
Pacific Gas and Electric Company, San Francisco, California

THE electric lighting industry enjoys an enviable position in the "Land of Opportunity" at the present time. The long period of non-development is at an end and an era of prosperity faces everyone connected with illumination. The development of this field has been, rather slow in spite of the fact that electric current was first generated and used for illumination purposes. Although wonderful inventions have contributed the gas filled tungsten lamp, practically no progress had been made in lighting methods until a short time ago.

Lately, however, illumination has been given a stimulus by a small group of engineers who proved to a doubting business world the dollars and cents value of higher intensities. Better methods are now being devised, experiments and research work are being carried on, and real progress made. The manufacturing world was first to realize the commercial value of light by being shown the increased production and safety resulting from good installations. Since then, it has been found that wherever people are engaged in activities which require illumination, their particular task is performed more swiftly and more easily, with more comfort and safety, under higher intensities. It does not require a great deal of imagination to realize the amount of additional lighting facilities which are necessary to supply this newly developed market. Every manufacturing and industrial establishment becomes a live prospect for more and better equipment, as well as offices and night schools, to say nothing of street lights and public buildings as well as homes.

The greatest untouched field for better lighting, however, has been opened by recent demonstrations of the sales value of light. Although merchants long have realized that good lighting was desirable, it has heretofore been considered ornamental rather than a necessary part of the store fixtures. It is now known, however, that high intensity illumination actually sells merchandise. Consequently merchants everywhere are seeking better lighting installations in their stores to swell their volume of business and overcome the keen competition. In view of the fact that the great majority of stores are provided with lighting systems planned and installed before the present wealth of knowledge on the subject was analyzed, and that much of the shop lighting is of a character susceptible of large improvement, it will readily be understood that here is a great field for new business.

THE possibilities of increased business for every branch of the industry are vividly portrayed in this article. Conservative estimates, based on actual survey, show potential profits in return for initiative which should approximate \$125,000 per thousand stores in nearly any city. This figure is explained in detail by Mr. Allison, who shows how manufacturer, jobber, dealer and central station will benefit by greater activity in promoting better store illumination.

Unfortunately, merchants who are desirous of securing better illumination are at a loss to find those who know how to put in correct installations. The lamp manufacturers are making a great effort to spread the knowledge of correct lighting methods by conducting classes in illumination design and by publishing literature on the subject. Both the National and the Edison Lamp Works of the General Electric Company have published a series of bulletins covering all phases of lighting which forms the most complete reference on the subject available. Everyone in contact with commercial lighting should become thoroughly familiar with this information, especially that part relative to stores and shops.

The average contractor-dealer has not given the illumination problems enough attention to permit him to properly design a good installation. Similarly, the architects and engineers have not made a special study of the subject to enable them to give expert advice. The power companies now realize that this service can be very profitably rendered by them, and many of them have added illumination engineers to their organizations. The Pacific Gas and Electric Company has placed an illumination expert in each of its divisions for the purpose of encouraging and advising the consumer on the proper use of light. Not only is it possible by this means to educate the dealers and public in better lighting methods, but also new fields of business may be explored.

This company has just finished a survey of the stores in San Francisco, to determine their potential business for the electrical industry. Partial results of this survey have been tabulated on 1,000 stores representative of the entire city and comprising all classes:

Segregation	Properly Lighted	Poorly Lighted		
		Insufficient Illumination	Obsolete Fixtures	Wrong & Bare Lamps
Store interiors	1%	81%	54%	41%
Display window	2%	36%	76%	21%

The amount of equipment necessary to properly light the 1,000 stores has been determined by carrying the investigation of these conditions a little farther. Over 90 per cent of the merchants whose stores were poorly lighted were desirous of securing better lighting when the defects of their present system were pointed out. From this it is found that:

882 display windows, and
991 store interiors

are actual prospects for better lighting.

A conservative estimate of the additional equipment necessary to properly light each store is shown as follows:

Interior	
Additional outlets per store.....	4
“ lighting units per store.....	6
“ lamps per store	5
Windows	
Additional outlets in each store front.....	5
“ reflectors in each store front.....	8
“ lamps in each store front.....	7

Thus it is seen that the contractor-dealer has an opportunity to wire 3,964 interior outlets and 4,410 window outlets.

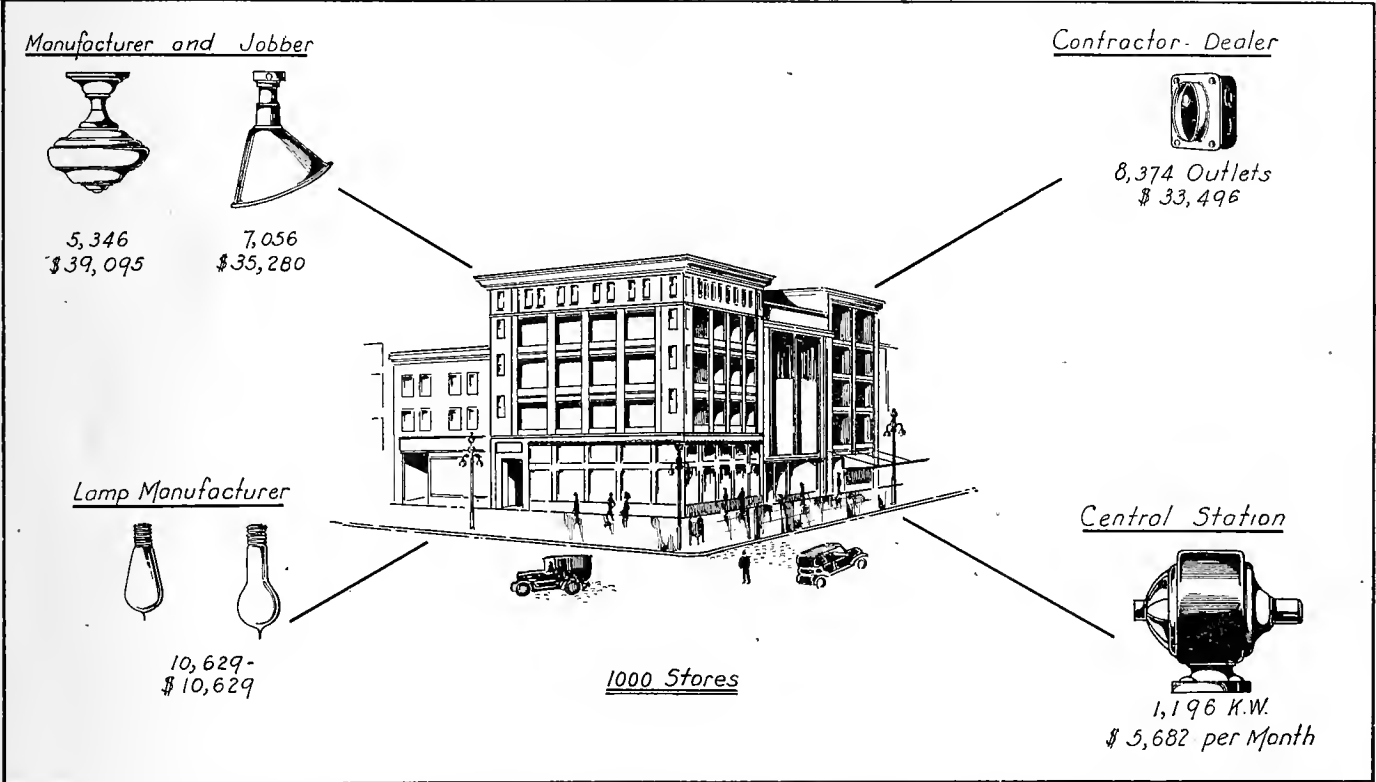
Similarly, the manufacturer or jobber would supply through the dealer 5,346 lighting units and 7,056 window reflectors.

8,374 outlets	@ \$ 4.00 ea.....	\$33,496.00
5,346 lighting units	@ 7.50 “	39,095.00
7,056 window reflectors	@ 5.00 “	35,280.00
10,629 lamps	@ 1.00 “	10,629.00

The average monthly revenue to the power companies of 1,196 kw. at five cents per kw-hr. would be \$5,682.

Thus it is found that practically \$125,000 worth of business may be secured from only 1,000 stores. In large cities containing many thousands of stores, the figure runs up into many millions, but the above figures relate to the average store which is found in places of all sizes.

The outstanding feature of the survey was found to be the apparent lack of interest in this class of business by the dealer. In many instances a dealer



Pictorial presentation of the sales possibilities per thousand stores attendant upon a better illumination campaign. It is interesting to note that all branches of the industry benefit by such work and that the effort should therefore be cooperative.

The lamp manufacturers will sell to the dealers 10,629 lamps for these outlets. The power companies will be called upon to supply power to the 7,974 new outlets at not less than 150 watts each, or a minimum of 1,196 kw. added load.

In placing an actual value on these quantities a very conservative estimate of the costs are used. The costs which will be used here for estimating are:

Cost of wiring average outlet.....	\$4.00 ea.
Average price of store lighting units.....	7.50 “
“ for window reflectors....	5.00 “
“ of lamps	1.00 “

From this, the volume of business available to the dealer is found:

would be located between two stores using bare lamps and obsolete fixtures, yet no effort had been made to secure the two hundred dollars of new business from his neighbors.

It evidently behooves the manufacturer and power companies to get behind a movement to secure this business, as this survey shows that it is there. One thing is certain. Whoever gets out and hustles will secure this business, whether it be the jobber, dealer or the power company.

As the interests of all those concerned are one and the same, a good plan would be to unite in making a drive to open this untouched treasure chest of opportunity.

The Electric Industrial Truck in Business

By Edward J. Power

Director, Electric Truck Bureau, Pacific Gas and Electric Company

TWENTY years ago, central station companies were selling practically no electricity for motive power purposes, while today there are being consumed over 200,000,000 kw-hr. of off-peak current per year. This considerably flattens out that valley which now exists in the load curve and at the same time returns a revenue, at three cents per kw-hr., of \$6,000,000 per year, certainly a return worthy of serious consideration. A large proportion of this current is consumed by the electric industrial truck.

In practically every line of business, one of the many problems which may arise is that of inter-departmental transportation. In the average plant, warehouse, railroad terminal and dock, it is the desire of every man in whose hands the efficient management of the business is placed, to move the material in the quickest possible time, and with the least waste of labor. These executives are attaining their objectives through the help of the electric industrial truck as evidenced by the thousands that are now in use. These vehicles are proving themselves indispensable in this work to operators who need a cheaper and more efficient method of moving material as they are small enough to negotiate narrow aiseways, yet sufficiently powerful to move heavy loads easily and speedily.

The Field for the Tractor

Usually the tractor is not designed to carry cargo upon its body. Its whole purpose is to haul trailers, by means of which loads of incredible weight are easily drawn. Where the loads are extremely heavy or the roadway poor, the greater tractive ability of this type of vehicle will be instantly recognized—especially in the four wheel tractor. One tractor will often displace from two to five horses in yard work, operating with much less care and supervision and costing less to operate than the feed of one horse.

Undoubtedly when long strings of express trailers have been seen being pulled through freight sheds or railroad warehouses or industrial plants it has caused wonder at the ease with which the little tractor at the head had handled the load. However, to the initiated this ease of operation is no surprise as they know just how ruggedly and compactly these machines are built.

Just recently the Southern Pacific Company has put in service at San Francisco two electric storage battery tractors that are illustrated herewith. These machines are used for pulling trains of express

THE electric industrial truck is fully as important to the central station as a load builder as any other form of electric vehicle. In this article Mr. Power points out some of the selling points which might influence an executive in equipping his plant with these trucks and at the same time shows that the field for application here in the West is a broad one.

trailers from the ferry boats to the main line cars. As a ferry boat does not have a great deal of room for maneuvering a machine, short turning radius is essential, and consequently these tractors are equipped to steer by all four wheels. Machine No. 4 shown in the photograph has two power axles, one on each pair of wheels, while machine No. 3 has only one. By a sim-

ple adjustment another complete power axle can be slipped into place without any trouble, illustrating the compactness of the various units. Should it be necessary to transfer a unit from one machine to another this can also be done which further points out the standardization and compactness of the parts.

An excellent example of the tractive strength of these "jitneys" happened just recently when machine No. 4 pulled a string of 23 trailers weighing 4,000 lb. each, off of one of the Southern Pacific ferry boats at extreme low tide. This necessitated climbing a ramp pitched at a 45 degree angle from the deck of the ferry boat to pier level.

Elevating Platform Trucks

The value of this type of electric industrial truck is recognized through its ability to use small platforms or skids. A skid is loaded (if desired, up to 6,000 pounds), the truck is run under it and at the touch of a lever, the bore of the truck raises it clear of the floor. The loaded skid is then delivered to the point desired to be unloaded, the truck making another trip with a load to the point of delivery. This type of truck is practically indispensable to any industry, as these and similar operations are continually repeated in warehouses, factories, and other manufacturing establishments. Today this type of electric industrial truck is used in over 250 branches of industry.

In the early part of 1916, the late Capt. William Matson, president of the Matson Navigation Company, and Capt. Charles Saunders, who was then general superintendent, took a very active interest in reducing their stevedoring costs by means of electric industrial trucks. At that time there were very few electric industrial trucks in use in San Francisco, and even those in use had not been used long. Therefore, almost no data were available, indicating what saving, if any, might be expected through the use of this comparatively new type of stevedoring truck.

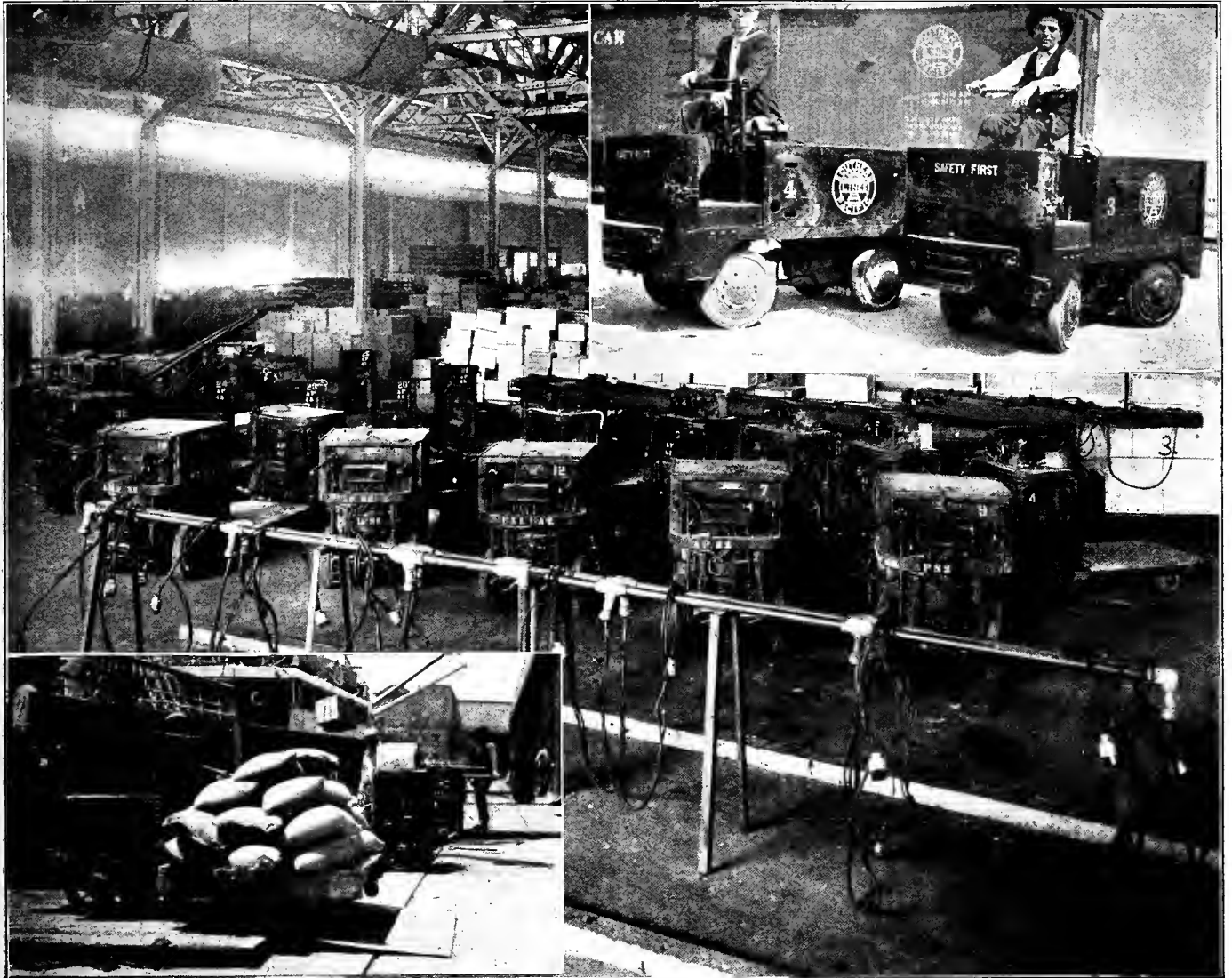
In order to gather more accurate data, a demonstration lasting several weeks was made to the Matson Navigation Company at Pier No. 28 and,

although a considerable amount of opposition was met with, the final result was that one truck was purchased for immediate delivery and three more were ordered to be delivered as early as possible. One of the latest applications is using the trucks in the bottom of the ship's hold, to bring the freight in much larger units than heretofore was possible by hand methods, up to the hook.

of trucks owned by other steamship operators, which trucks have seen from five to seven years of service.

Relative Freight Handling Costs

After the Matson Navigation Company had had the first four trucks in service for something like two years, and before they made extensive additions to their fleet, they determined that an average and fair comparison between the cost of moving freight



Upper right—Industrial trucks of the Southern Pacific Company. These trucks are used for handling freight from the interior of cars to the warehouse. Lower left—Trucks of the Matson Navigation Company which are employed for handling cargo from the holds of ships to the dock or freight cars. Center—A battery of trucks used on the docks of the Matson Navigation Company.

It is a well known fact that any kind of equipment suitable for general stevedoring work must be of a very rugged and substantial type, and, further, that failures in service are serious on account of the value of the ship's time. It is significant that electric trucks are not only extremely simple in operation, making them a practical apparatus to put in the hands of the average longshoreman, but considering the very severe nature of the work which they are called upon to do, are of remarkably long life. Several of the electric trucks in the Matson Navigation Company's fleet have seen more than six years of service. There is also a considerable number

by hand and electric truck methods could be made, as represented by the following, which was given to the writer several years ago.

It required 11 men with hand trucks one hour and fifty-five minutes to move 1,050 cases of pineapples 500 ft., the cost at the rate of wages then prevailing being \$13.20. At the same time it required 9 men and one electric truck one hour and ten minutes to move 1,140 cases 400 ft., the cost of which was \$7.05 including the cost of maintaining and operating the electric truck. The above work consisted of loading one car each by hand and with an electric truck.

In further explanation of the above, it will be noted that 9 men were used; this is because the object almost universally sought for is to move the goods as quickly as possible, therefore using as many men as can be economically handled on any given job. It was found that, in keeping the platforms loaded as fast as the truck could handle them, often times from five to ten men could be used to advantage to keep one electric truck of the so-called elevating, or lift type, constantly busy moving loaded platforms. As a result of this, a considerable portion of the electric trucks owned and operated by the several larger steamship companies in San Francisco, and other Pacific Coast ports, who do their own stevedoring, are of the lift type because of the comparatively greater amount of work which can be performed with this type of truck.

Tier Lift Truck

After the above comparisons, both as regards time required and cost of handling freight by electric lift trucks as compared to hand methods, the Matson Navigation Company added to their fleet at frequent intervals, until they are now operating 32 electric trucks.

There is a very wide range of usefulness for the tier lifting truck. Where containers are stocked in tiers or where trucks, box-cars, etc., are to be loaded, this truck can be operated efficiently with the minimum of lost motion. The platform is raised to the desired height by power from the battery; then the truck is driven into position and the load slides off. With this type of truck a 4,000-lb. load can be raised 75 in. in one minute thirty-seven seconds. This machine, by doing the heavy lifting heretofore done by man power, makes the work of the men easier, thus reducing both labor turnover and accidents.

Many factory executives have undoubtedly seen the "electrics" in operation at railway terminals and have admitted they were a good thing, a necessity under present day standards of efficiency, yet they may not have realized that the use of similar trucks and tractors, perhaps of a type more applicable to their individual requirements, might prove just as effective in their own plants as in the railroad terminal. On investigation these men will find that electric transportation may be had economically and with a high degree of efficiency.

Analyzing the Christmas Buying

By R. E. Neustadt

Manager, Retail Trade Association,
San Francisco Chamber of Commerce, San Francisco, California

DRIVING in a crowded thoroughfare is no different than driving along a country lane—only it's more so. Likewise, merchandising for the Christmas season is just like merchandising for the most average month of the year, only it's more so. The holiday season enhances the difficulties, dangers and opportunities of retailing, but in no way changes them.

The merchant is at all times in much the same position as the newspaper editor or the theatrical manager. He must give the public what it wants and still must assume certain responsibility in deciding for the public what it shall have. The difference is sometimes only a hair line. Yet it is just this difference that justifies the existence of the independent retailer. The way in which he appreciates the distinction and assumes his responsibilities makes for his financial success or failure.

Certainly in the layman's mind, Christmas is the bonanza season for the retailer. Everybody is buying everything—the storekeeper cannot help but make money. But to anyone who knows, the Christmas business can just as rapidly use up red ink as black. The volume of sales made in the holiday season can just as rapidly pile up the figures on the debit side of the ledger as on the credit side. The very situation that is induced by the holiday spirit can make a business sick as often as it can make

***T**HE buying of Christmas stocks should be done as a part of the constructive work of the entire year's program and should be based on analysis of sales as well as on judgment. Mr. Neustadt gives some pointed thoughts for the consideration of every retailer of electrical appliances.*

it healthful. Selling, like drinking, works many different effects.

The merchant is just now in the position his customers will be in in December—with the one important exception that he hopes to make a profit on his purchases, while the public at least expects only an even exchange on their gifts.

He is today buying his holiday goods from the wholesalers and manufacturers. Unless he keeps in mind always the condition of his own business and the needs of his own trade, he is in danger of falling for glib salesmanship and finding himself plastered with bills on January first for non-usable goods until he looks like the traditional family father of our cartoons.

The merchant who knows the limitations of his own business and the needs of his own trade, discounts all the excitement of Christmas. He knows—by each item of merchandise—how much he will sell, how much more he should buy as a factor of safety, how far in advance and in what quantities to buy it, and how much he can afford to pay for it in order to insure his selling it at a fair price with a fair profit. Out of the experience of years, boiled down to cold hard figures, he budgets his Christmas business months in advance. Indeed, it is just an item in the budget of his whole year's business and bears a carefully worked out relation to the business.

of the other months. He knows what he sold in previous years and knows the possibilities of expanding his volume without adding to his expense of selling. He knows, too, the factors in the general economic situation that tend to increase or decrease these possibilities of expansion. Knowing these things, the buying of the goods becomes comparatively easy. Certainly buying is an art that is not easy. And selling is an art that is not easy. But merchandising by the use of known facts, plus sound common sense, can be made scientific enough to become, not easy, but at least easily controllable.

To the shopkeeper who still trades by hunch instead of figures, Christmas always acts as the vamp in the movies. What could be more alluring? A public, forced by sentiment and tradition to buy! And such attractive opportunities to purchase all kinds of knick-knacks, as well as staple articles! The situation seems to make inevitably for an expansion of selling—so he buys. Liberally, lavishly he spreads his orders around among his friends—the salesmen. He takes a chance and increases the size of his order because it looks pretty, or because the sales argument was a cracker-jack, or because the terms seem especially good, or because he feels the glow of Christmas in his manly bosom and likes the feeling of giving—orders. Such storekeepers are as gullible as they think the public are. They fall for the salesman's ads, talk and sample even more quickly than they can expect their customers to fall for their ads, talk and display.

At that, these "hunch" storekeepers often get away with it. But inasmuch as they throw away every pretext of scientific merchandising, we must credit their occasional success to luck rather than to judgment.

There are still some storekeepers who feel that Christmas, like a circus tent, is a cover for hokum. They lay in a stock of inferior merchandise and get rid of it at large prices through fancy boxes, nice ribbons and a lot of Santa Claus cotton sprinkled around their store. Such practice is fast becoming unpopular, not only with the public but also with the merchants themselves. The storekeeper who depends for volume more upon hippodroming than on merchandising will some day be as out of luck as the one-time retail cheater characterized in that famous old song—

"He kept the sox, but he gave me the box,
And I'll never go there any more."

The retailing of electrical supplies is at best a hazardous game. Not only are all the general pitfalls of retailing present, but there are lots of special ones due to the fact that the distribution end of the great electrical industry has not, as yet, been satisfactorily worked out. It is very difficult for a man to handle these lines exclusively. The discounts allowed by the manufacturers and wholesalers are, for the most part, insufficient to permit large enough mark-ups to offset the extra heavy selling and service costs of the business. While the number of articles is large and involves the investment of a sizeable capital, the line is so limited that it becomes difficult to spread the overhead without inflating the mark-

up. In consequence the retailing of electric supplies is only occasionally handled by itself and is most often combined with other lines, such as hardware and stationery or with electrical contracting and installation work. The appearance of radio supplies has complicated rather than simplified this situation.

It is impossible to prophesy what turn the method of retail distribution of electrical supplies will take. One thing is certain;—the problems involved are so complex, and the factors affecting the solution so many that the retailer handling these supplies has to be more cautious in every step he takes than his neighbor in any other line of trade. The chances of success are so beset with special difficulties, as well as with the general hazards of commerce, that he must lean over backward in his merchandising and buy only what he feels certain he can sell at a price that will justify the transaction. He is so apt to get stuck anyway that he, of all people, cannot afford to get stung.

To all real merchants good merchandising necessitates determining first what can be sold, the cost of selling it and how much money can profitably be invested in the purchase; and then, secondly, the buying of the goods. This involves the setting of expectancies, buying limits, turnover and profit rates, the painstaking accounting of costs and inventories, and the continuous analysis of sales to determine how performance is following the program. It is quite possible to secure all this information without great expense, and without the assistance of technical super-experts. Proper merchandise control is so identical with common sense as to make it far simpler to obtain these data than it sounds.

The Christmas business is the peak point of sales volume. Properly merchandised it will carry much of the overhead of the general business, and add very largely to that little margin that makes all the difference in the annual financial statement of the firm. To be properly merchandised, it must be merchandised as a regular part of the year's business. It is well and proper if the whole year's business is keyed up for Christmas as a football team is "pointed" to the one big game.

To make Christmas merry one must take Christmas sanely. This is just as true of the retailer as of the average dub public. We must buy to sell, rather than be forced to sell what we buy. We must plan our selling—this plan will dictate our purchases. We must keep in mind the condition of our stocks, the limitations of our purse and our expense of operation. We must fore-judge what the public will want, based on our recorded experience and our knowledge of the conditions affecting the public's state of mind. There is still an element of chance here, and it is this chance that justifies charging the public something over and above our cost of operation. But we must limit this chance as far as possible by checking our hunches against known facts and holding our enthusiasm within the confines of carefully developed plans, based on sound judgment and experience. All merchants must prearrange their Christmas business to make it profitable. Particularly and peculiarly is this true of the retailer of electrical supplies.

Revision of the 660-watt Rule

By Claude W. Mitchell

Electrical Engineer, Board of Fire Underwriters of the Pacific, San Francisco, California

OF the many changes which will appear in the 1923 edition of the Code the one which may be considered most important and the one which, at least, has had the most publicity is that relating to fusing of branch circuits. In the old Code this at times has been referred to as "the 660-watt rule."

For the purpose of the new rule the terms "branch circuits" and "outlets" are defined as follows: "Branch

Circuit" is that portion of a wiring system extending beyond the final set of fuses or circuit breaker protecting it. Points on which current is taken to supply fixtures, lamps, heaters, motors and current consuming devices generally are designated as "outlets." The new rule for fusing of branch circuits is as follows:

*807b. By permission of the inspection department, on systems having a grounded neutral or having one side grounded, and where the grounded conductor is identified and properly connected, two-wire branch circuits may be protected by a fuse in the ungrounded wire, no fuse being placed in the grounded wire. Otherwise, two-wire branch circuits shall be protected by a fuse in each wire.

807c. Three-wire branch circuits may be run from direct current or single phase alternating current systems having a grounded neutral, in which case the neutrals of the branch circuits shall not be interconnected except at the center of distribution.

807d. Branch circuits in general, and except as described below, shall be protected by fuses of no greater rated capacity than—

15 amperes.....	at 125 volts or less
10 amperes.....	at 126 to 250 volts.

807e. Fixture wire or flexible cord of No. 18 or No. 16 gage shall be considered as properly protected by 15-ampere fuses.

Receptacles for attachment plugs (convenience outlets) are strongly recommended in order to facilitate the use of electrical appliances which, otherwise, must be connected to sockets designed primarily only as lampholders.

807f. On a two-wire branch circuit and on either side of a three-wire branch circuit, the number of outlets shall not exceed twelve (12) except by permission of the inspection department.

807g. Branch circuits supplying only sockets or receptacles of the mogul type shall have the wires protected by fuses having a rated capacity not greater than

THIS is the second of a series of articles by Mr. Mitchell explaining the arrangement and provisions of the 1923 edition of the Code. This article deals particularly with the so-called "660 watt rule" and with the provisions for correct fusing. Particularly is attention drawn to the new rule—section 807-C. This article should be read by every one who is in any way connected with electrical construction and installation.

40 amperes, at 125 volts or less.
20 amperes, at 126 to 250 volts.

807h. If protected by 40 or 20-ampere fuses as above, wire not smaller than No. 12 shall be used for wiring fixtures with mogul sockets and receptacles and may also be used for taps not over 18 inches long from the circuit wires to the points of suspension of the fixtures.

807i. The number of mogul sockets on a two-wire branch circuit and on

either side of a three-wire branch circuit shall not exceed eight (8), except by permission of the inspection department.

Identification of Neutral Wire

Section 807b specifies the conditions under which the fuse may be omitted in the grounded conductor of a two-wire branch circuit. One of these conditions is that the grounded conductor be identified. A new rule (Section 601b) under the heading of "Conductors" will require that for conductor sizes No. 8 and smaller the neutral conductor on all three-wire circuits and one conductor on all two-wire circuits shall have a continuous identifying marker readily distinguishing it from the other conductors. For rubber-covered wire the identification shall consist of a white or natural gray covering. When one of the circuit wires is to be grounded the ground connection shall be made to this identified wire. This rule will prohibit using the identified wire for all conductors of a circuit as is being done very largely at the present time.

In existing installations made previous to the time when this rule goes into effect the neutral will not have this continuous identifying marker; therefore it will not be permissible to substitute single-pole protection for that now required for each wire of two-wire branch circuits in such installations. Nor will it be permissible to provide only single-pole protection on additional branch circuits in which the approved identified wire is installed unless such proper identification is continued on through all circuits supplying these branch circuits and all other grounding requirements are complied with.

In installations of such size that feeders and sub-feeders are larger than No. 8 it will be necessary to identify neutral conductors of these feeder circuits in some manner. In open work it may be by location with reference to other wires, as the center wire of a three-wire feeder circuit. In other cases after tracing or testing out, the neutral may be identified by labeling in a suitable manner.

*Section numbers as assigned to rules in this article are the same, in all probability, as they will appear in the new Code.

Ground Connections

Another condition which must exist if the fuse is to be omitted in the grounded conductor of a two-wire branch circuit is that the grounded conductor be properly connected. A discussion of the subject of grounding would require too much space for this article. Therefore it will be assumed that the grounding has been properly done in this case. Then the grounded conductor will be properly connected if compliance is made with the new rule which states that the connection with the ground on alternating current systems shall be made at each service before being connected to the power company's distribution line: provided, however, that by permission of the inspection department the connection may be made at or near the transformer, or transformers or by connection to a system ground wire. The term "system ground wire" as used here does not refer to the interior wiring system but to the outside distribution system. In some localities reliable grounds are so difficult to obtain that ground wires are carried on pole lines to a place where a satisfactory ground is obtainable. This is called a system ground wire.

It will be noted that in the rule just referred to as well as in Section 807b reference is made to "permission of the inspection department." In the application of this condition to these particular rules it is not intended or expected that each case will be treated individually. It is the belief that inspection departments will be governed by local practices and conditions and issue blanket permission accordingly. For example, in one city underground services only might meet requirements. In another the distribution system of one power company might be installed so as to obtain this approval while others did not; and in another locality the practice of a serving company might be such that the permission could be granted only on certain portions of its system.

From the preceding it is evident that no one should apply this provision of the Code without first having determined definitely that it is permissible in the particular location where the installation is to be made.

Section 807c changes a part of the old rule 23d so as to permit running of three-wire branch circuits supplying lamp sockets. Attention is directed to the requirement that the neutrals of such circuits shall not be interconnected except at the center of distribution.

Outlets per Circuit

Section 807d appears very simple as it stands but the subject matter contained therein, without a doubt, has caused more discussion than any other one rule of the Code, and the new rule presents one of the most radical changes that will appear in the 1923 edition. In the new rule no reference whatever is made to "watts," but the circuit limitation is expressed in amperes, the figures given denoting maximum capacity of fuses permissible.

Obviously a circuit protected by 15-ampere fuses at 125 volts has a capacity greater than 660 watts

and one protected by 10-ampere fuses at 250 volts a still greater capacity. But while the capacity has been increased there has been specified a limit of 12 outlets per circuit (Section 807f). This decreased number of outlets will tend to hold down the circuit load to a certain extent. Attention is called also to the fine print note under Section 807e in which convenience outlets are strongly recommended. This is done for the reason that the Code in this and other rules anticipates the connection of small portable electrical appliances to lighting circuits. In the past they have been so connected and because many of them have a power consumption which very nearly approaches the 660-watt limit it has been practically impossible to restrict fuses to the limit set by the 660-watt rule if continuity of operation was to be maintained. Almost invariably circuits have been fused above the prescribed limit and quite frequently shunted out altogether. It is hoped that the larger fuse capacity allowed under the new rule will obviate this condition.

Identifying Colors for Fuses

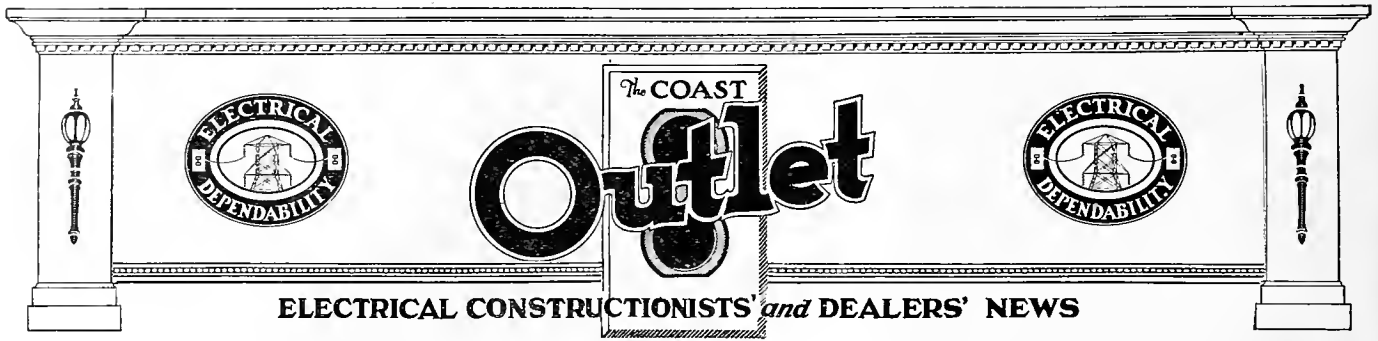
It is possible that at some future time a new classification for cutout bases will be made so that one will be required which will accommodate fuses of no greater capacity than 15 amperes. For the present, however, the new Code will go no farther than to prescribe a means of readily identifying fuses of 15 amperes capacity or less from other fuses. On cartridge fuses the paper label will be red for 600-volt fuses, navy blue for 250-volt fuses of 15 amperes or less capacity and green for 250-volt fuses of over 15 amperes capacity. Plug fuses of 15 amperes capacity or less will be distinguished from those of larger capacity as follows: by an hexagonal shaped recess in the top of fuses having porcelain or moulded composition tops, and when labels are used with such plug fuses the labels will also be hexagonal in shape and fill the recess; or on plugs having solid metal caps, by an hexagonal impression either raised or lowered on the caps.

Mogul Sockets

Sections 807g, h and i replace the old rule which limits circuits supplying sockets or receptacles of the mogul type to 4,000 watts. The new rule, by placing the limit where it does on ampere capacity, really increases the circuit capacity but limits the number of outlets to eight.

In addition to circuit capacity limitation due to maximum number of outlets specified in Sections 807f and 807i of the Code there are other limiting factors in some cases. In a number of cities the municipal inspection departments have very definite requirements specifying minimum capacities to be assigned to certain outlets according to location and purpose for which they are to be installed.

A shipment of the new code books will be made from the East within a few days. Copies will, therefore, be available, barring unforeseen delays, about Nov. 1, and may be obtained on application to the Board of Fire Underwriters of the Pacific, Merchants' Exchange Building, San Francisco.



Electrical Construction

By E. Earl Browne

IN the past building owners have suffered considerable loss and tenants have been seriously inconvenienced by the failure to make adequate advance provision for telephones and private call bell circuits. Frequently a great deal of damage to the property has resulted from subsequent installation of these devices and nearly always it has been impossible to conceal the wiring so that a neat and satisfactory job could be had. In addition to these features it has been found that the cost of installation, where provision had not been initially made, has frequently been so high as to be prohibitive.

Provision for public telephones and messenger call is best made by using either a portion of the riser closet, as per Figs. 1 and 2 which appeared on pages 254 and 255 of the Oct. 1 issue of the Journal of Electricity, or separate closets for these two services. The cables can then be run, as service is required, from the basement to cabinets and connecting

moulding in each room one or more 1/2-in. conduits are installed from the moulding line to an outlet in the base board, as is shown in Fig. 3. As desks are usually arranged near the windows an outlet on each side wall near the front would probably provide for

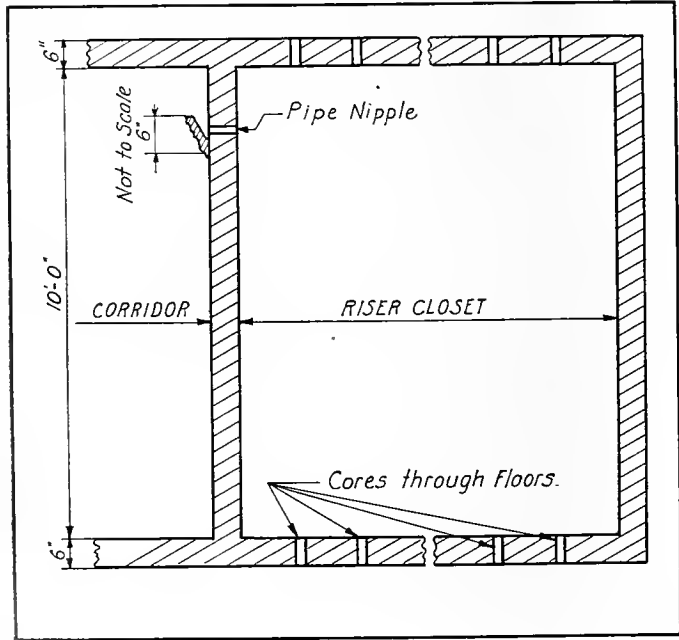


Fig. 1—Signal and telephone closet with sleeves through floors for risers and cross connection of floors, also sleeves for the running of telephone wires in deep moulding.

strips or racks. The corridor usually has a deep wooden moulding run on both sides, as per Figs. 1 and 2, herewith, and as will be noted in Fig. 1, sleeves are installed in walls from closets to mould and also from each room to the corridor moulding. From the

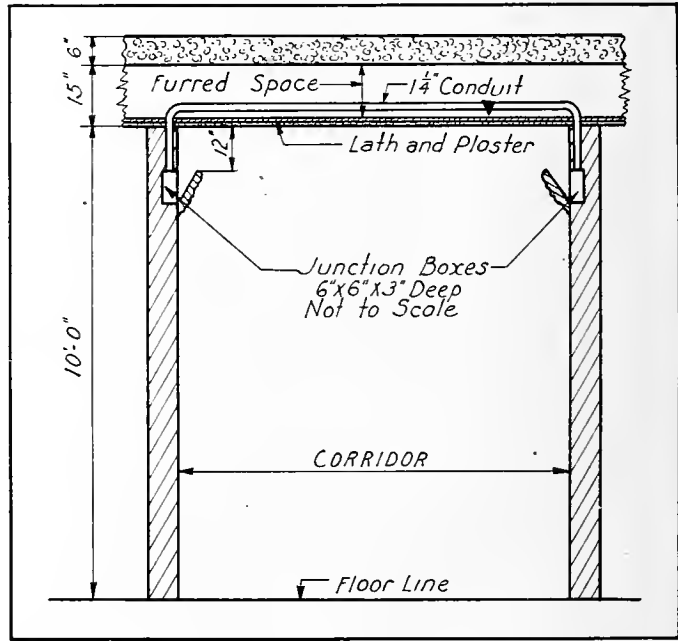


Fig. 2—Showing method of crossing corridor with conduit for telephones and other signals.

service with a minimum of exposed wiring. There has recently been developed a line of hollow moulding which is made an integral part of base boards and door casings and has a removable cap for placing or changing of wires and does away with any necessity for unsightly exposed wires, but as this is rather expensive it is cheaper to provide for this service as above outlined.

In office buildings designed for suite rental in large groups or with few partitions the problems of bell and buzzer signals, which in most cases cannot be predetermined in advance of the general construction, can best be served by a network of empty conduits with an outlet on each column and four outlets equally spaced in the floor of each bay as per Fig. 4. As to the size conduit to run from the terminal cabinet in the closet to a group of outlets, it is generally safe to figure that not more than six calls will be required per bay which means that even

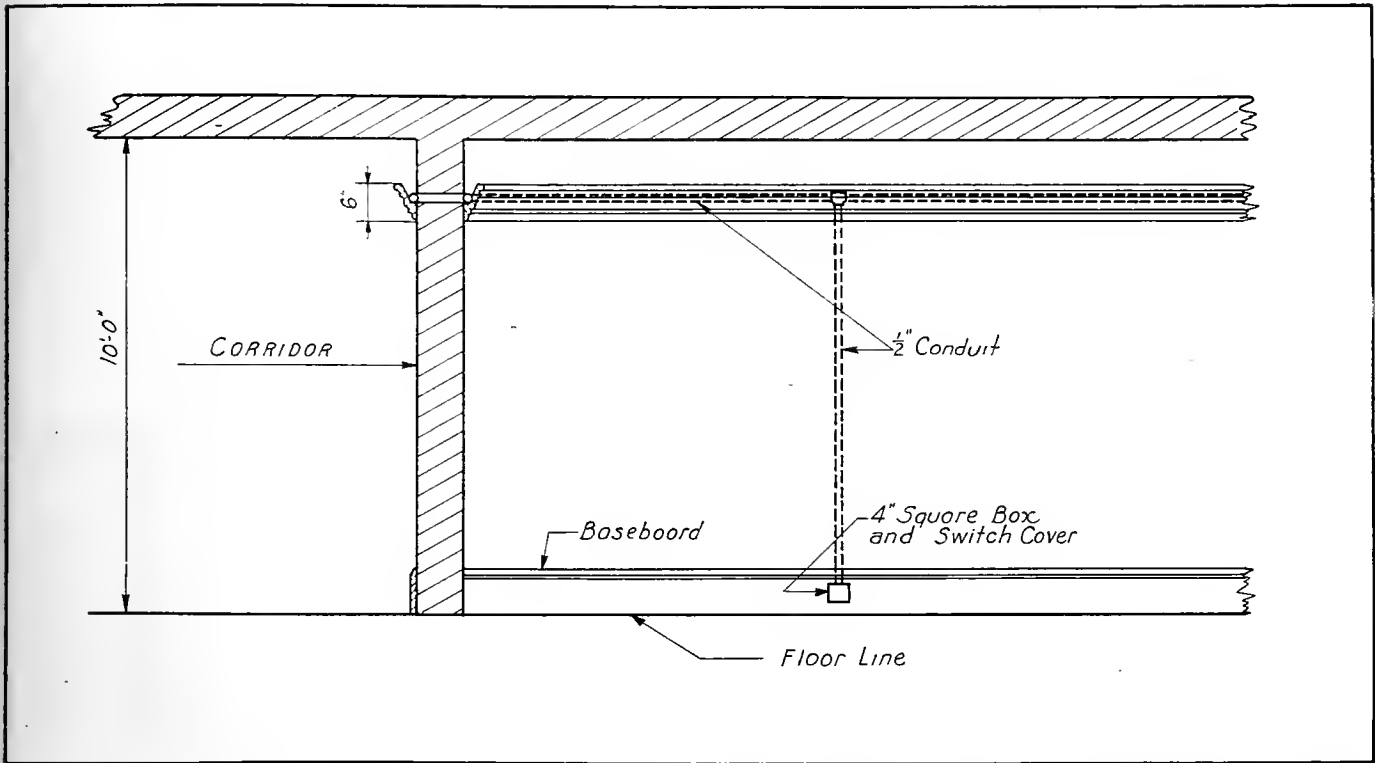


Fig. 3—Method of supplying public telephone service by means of raceways of picture moulding with sleeves through walls and conduits down partitions.

a return call system with two individual wires and the common battery lead would total but thirteen wires. Where the calls are one way the total would be seven wires per bay. The following table shows the number of No. 18 light insulated fixture wires in combination with a battery wire of No. 14 S. B. solid R. C. wire which can be installed in various size conduit on a basis of 40 per cent of the area of the conduit:

$\frac{1}{2}$ "	— (7) and (1) No. 14 Battery Lead
$\frac{3}{4}$ "	— (16) and (1) No. 14 Battery Lead
1"	— (28) and (1) No. 14 Battery Lead
$1\frac{1}{4}$ "	— (50) and (1) No. 14 Battery Lead

In cases where there is a straight piece of conduit or one with not over one bend the following number can be installed:

$\frac{1}{2}$ "	— (12) and (1) No. 14 Battery Lead
$\frac{3}{4}$ "	— (25) and (1) No. 14 Battery Lead
1"	— (45) and (1) No. 14 Battery Lead

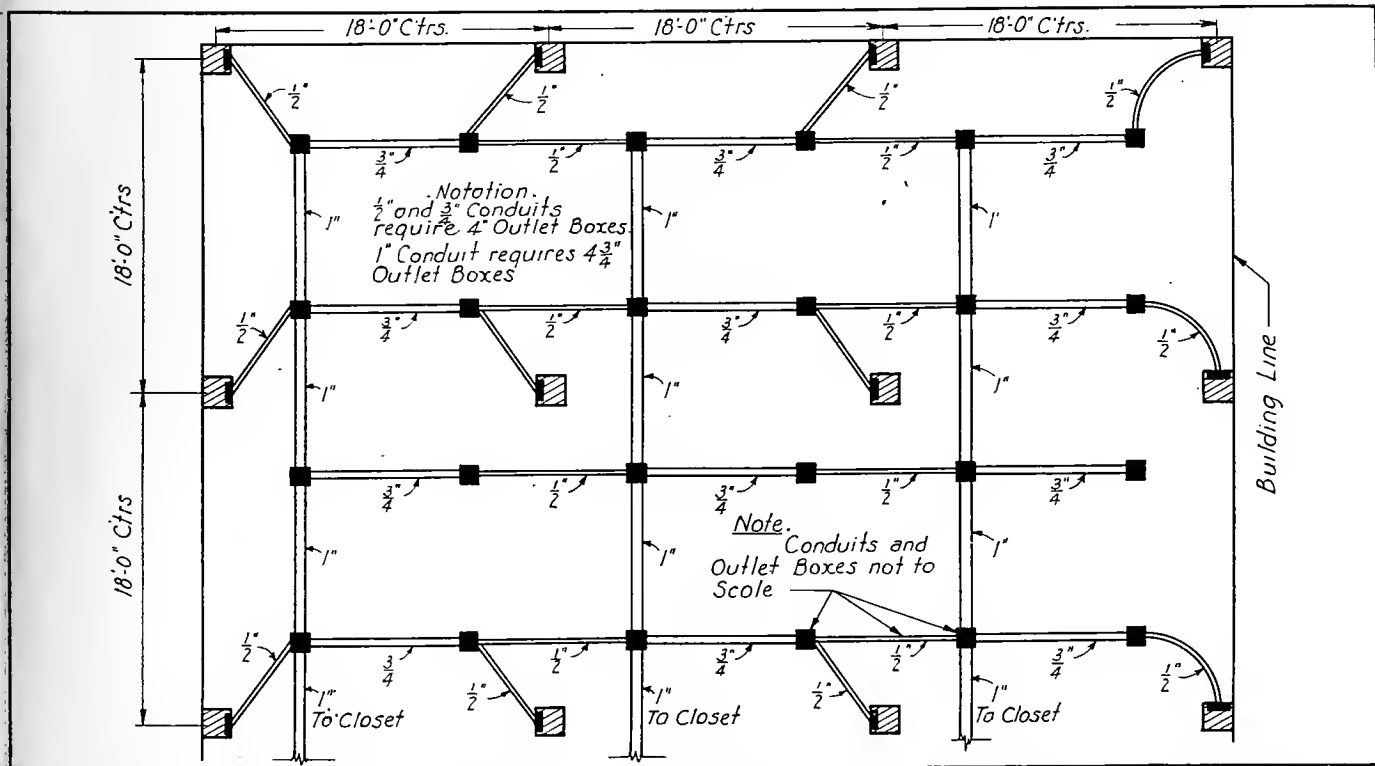


Fig. 4—Conduit network for buildings to be occupied by concerns requiring an intricate signal system.

Maintaining the Sign of Electrical Dependability

Quality Workmanship and Fullest Responsibility Assumed by Firms Who Show the Symbol on All Occasions

Each week brings to hand more and more evidence of the continued growing popularity and enthusiasm of the electrical constructionists and dealers in the campaign to put over to the public the significance of the "Electrical Dependability" trade mark of the California State Association of Electrical Contractors and Dealers.

The biggest difficulty heretofore encountered by the dealer in doing electrical work, is the lack of appreciation on the part of the public of having a job done so completely, that when finished and placed in operation they can depend upon its giving them in the way of operation and performance of duties, that which they had anticipated and wished for.

Efforts since the start of the campaign have been not only to get the dealer, but the public particularly, to appreciate the importance of getting electrical work of such completeness that they can place their confidence in it to meet immediate and possible future needs. Hence the mark of "Electrical Dependability" and the campaign back of it to keep the public reminded of the necessity for better and more complete jobs.

Assisting in this effort, the dealers throughout California are introducing the slogan in many of their publicity channels, some ways being illustrated herewith.

The Journal of Electricity is very much interested in the progress of this campaign and invites dealers to send in samples of all matter bearing the slogan used in furthering this promotional work.

Neat Case for Holding Circulars Brings Sales Development

One of the valuable sales helps furnished without cost to the dealer is the circular matter prepared by manufacturers descriptive of their goods. Unfortunately many dealers overlook the value of such material and either do not use it at all or display it carelessly in loose bundles on the counter.

Live dealers are realizing that these circulars are a real help and that they carry in condensed form all the major sales arguments for the device concerned. They are, therefore, making provision for the neat display and adequate use of such material and are providing a proper container which they

keep at a handy location near the cash register or on the counter.

The illustration herewith shows an excellent display case for holding circulars and descriptive matter. The case is made of light wood or metal with partitions to keep the various circulars separate. As the case slants slightly to the rear all circulars are given equal prominence and selection may be made readily. Such a case kept where customers may help themselves to the literature therein is of assistance in that a customer may see displayed a circular descriptive of something which interests him and his interest may thereby be developed into a sale.



An attractive case for displaying circulars.

ELECTRICAL CONSTRUCTION

INSTALLED BY

VICTOR LEMOGE

The Victor Lemoque Co., S.F.

BUTTE ELEC. EQUIPMENT CO.
192
CONTRACTORS AND ENGINEERS
MATERIALS AND SUPPLIES
SAN FRANCISCO

TOBROW-LANGLAS ELECTRICAL CONSTRUCTION COMPANY, INC.
SAN FRANCISCO

Victor Lemoque
Electrical Construction
San Francisco, Cal.

The sign of "Electrical Dependability" is used by the members of the California State Association of Electrical Contractors and Dealers on every occasion. This photograph shows some of the means employed to give publicity to the symbol and slogan.

WASHING MACHINE DIRECTORY

Published and Copyrighted by the Journal of Electricity, October 15, 1923

A list of washing machine manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of our knowledge it is correct at date of publication. When referring to this list in any way, mention the Journal of Electricity.

Key to Abbreviations
 O—oscillating type
 VC—vacuum cup type
 Cl—cylinder type
 D—dolly type
 Im—impeller type
 DFM—Dayton Fan & Motor Co.
 Wx—Westinghouse
 GE—General Electric
 RM—Robbins & Myers
 Em—Emerson
 Dom—Domestic
 Cen—Century
 L—Lovel
 W—wood
 M—metal
 Sw—swinging
 St—stationary
 An—Anchor
 Am—American
 C—copper
 TC—tinned copper
 Cz—copper, zinc lined
 GI—galvanized iron
 Z—zinc
 VM—various models

MANUFACTURER	TRADE NAME	Operation	MOTOR		WRINGER		TUB			RETAIL PRICE		WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTOR	Nearest Point At Which Repair Parts May Be Obtained.
			Horse Power	Maker	Type	Length in Inches	Dimensions	Capacity (Sheets)	Material	Eastern	West of Rockies			
metal Mfg. Co., St. Louis, Mo.	"Almetal" "Pollyanna"	VC O	1/4 1/4	GE GE	W W	11 11	19x18 26x17	6 7	C C	\$135 \$120	\$145 \$130	.....	W. C. Bailess, 531 W. 8th St., Los Angeles	Distributor.
er Bros. Co., Peoria, Ill.	"A. B. C."	Cl O D	1/4 1/6 1/4	RM M W	M M W	12 12 11	22x24	6	W or Z	\$145	\$155	W. E. Peters, 89 E. 12th St., Portland	A. A. Wilson, 612 S. Spring St., Los Angeles E. W. Murray Ltd. Co., Spokane Richter Sales Co., Seattle Electric Service Co., Portland	Distributors.
ex Appliance Co., 2223 W. 30th St., Chicago, Ill.	"Apex"	O O	1/6 1/4	GE RM Wx	M M	11 12	..... .....	6-9 16	TC TC	..... .....	..... .....	A. M. Smith Co., Los Angeles	Dealers	Dealers
ex Elec. Mfg. Co., The 1067 E. 152nd St., Cleveland, Ohio	"Rotarex"	Cl	1/4	OwN	M	12	17x18	8	G C	\$152.50 \$167.50	\$157.50 \$172.50	G. A. Buckley, 1405 Walnut St., Kansas City, Mo.	The Apex Elec. Distrib. Co., 681 Market St., San Francisco 1437 Welton St., Denver 2117 Inyo St., Fresno North Coast Electric Co., Portland, Seattle, Tacoma, Spokane Electrical Equip. Co., Butte Illinois Elec. Co., Los Angeles Inter-Mountain Elec. Co., Salt Lake City	Distributors
omatic Elec. Washer Co., Newton, Iowa	"Automatic"	D	1/4	Wx Em	W or M	12	.....	6	C or W	\$107	\$117	Inter Mountain Elec. Co., Salt Lake City and Direct Salesmen	Domestic Elec. Appl. Co., Seattle Inter Mountain Elec. Co., Salt Lake City and Direct Salesmen	Salt Lake City
low & Seelig Mfg. Co., Eaton, Wis.	"Big 3"	VC	1/6 and 1/4	Em	W	11 and 12	.....	4 to 8	C	VM \$90 to \$150	VM \$100 to \$165	Dohrman Commercial Co., San Francisco	Dohrman Commercial Co., San Francisco	Distributor
ckeye Prima Co., The Sidney, Ohio	"Prima"	O	1/4	GE	M	12	.....	8	W	\$160	.....	H. R. Christy, 322 Leary Bldg., Seattle	H. R. Christy, 322 Leary Bldg., Seattle	Distributor
icago Dryer Co., 2210-20 N. Crawford Ave., Chicago, Ill.	"Chicago"	O	1/4	Em	M	12 and 14	26x18 26x21 26x24	9 12 15	Cz	\$200 to \$375 VM	.....	.....	M. E. Hammond, Pacific Bldg., San Francisco S. W. R. Daily, Seattle Maritzen-Kuns Co., Los Angeles	Distributors
irinda Mfg. Co., Clarinda, Iowa	"Clarinda"	D	1/4	GE	W	10	22x22	6	W	\$80	\$90	Thos. T. Hoffmire, 178 W. 41st Place, Los Angeles		
rk Cadle Harmon Corp., Rochester, N. Y.	"Harmony"	Cl	1/4	Wx	L	11	18½x19	8	W	.....	.....	Rawling & Smith, 604 Mission St., San Francisco	Dunham, Carrigan & Hayden Co., San Francisco	San Francisco
field Washer Co., The Dayton, Ohio	"Coffield"	O	1/4	Sp	Sw	12	22x22	8	TC	\$155	\$160	E. P. Becker, 111 E. 3rd St., Los Angeles	Woodill-Hulse Elec. Co., 111 E. 3rd St., Los Angeles Honeyman Hardware, Portland Northwest Washer Co., Seattle	Distributors
lan Corporation, 52nd Ave. and 19th St., Chicago, Ill.	"Incomparable Conlon"	Cl	1/4	GE	M	12	23x22	6	C GI	\$180 \$170	.....	Woodill-Hulse Elec. Co., Los Angeles		Distributor
vis Sewing Mch. Co., The Dayton, Ohio	"Blue Bird"	O	1/6	GE Wx	Sw	11	16½x27	8	C	\$160	\$160	C. A. Eastman, 213 Corbett Bldg., Portland	Blue Bird Appliance Co., 1007-1st Ave., Seattle Alexander & Lavenson, San Francisco K. P. Loop, McMinnville, Ore.	San Francisco
wn Mfg. Co., The Bridgeport, Conn.	"Dawn"	VC	1/6	GE	Am	12	.....	6	....	.....	\$79	Frederic A. Clarke 351 Oak St., Glendale, Cal.		336 S. Broadway, Los Angeles
ico-Light Company, Dayton, Ohio	"Delco-Light"	O	1/6	DL	M	11	22x22	8	C	.....	\$160	.....	W. L. Cochran, Inc., 880 Mission St., San Francisco Ivan L. de Jongh, 129 E. 6th St., Los Angeles Modern Appliance Co., 508-1st Ave., South, Seattle	Distributors
eral Electric Co., 3700 S. State St., Cbicago, Ill.	"Federal"	O	1/4	Wx	L	....	32x27	6	C GI	\$175	\$175	Federal Electric Co., 91 New Montgomery St., San Francisco	Jobbers	Jobbing Points
ote-Burt Co., The Cleveland, Ohio	"Aerobell"	VC	1/4	GE RM	M	....	18½x24	8	C	\$165	\$175	.....	Commercial Associates, Los Angeles Barker Bros., Los Angeles	Los Angeles
ston Mfg. Co., St. Paul, Minn.	"Pal-O-Mine" "New Liberty"	O Cl	1/6 1/4	Wx Wx	St Sw	.... ....	..... .....	6 8	C W	\$125 \$145	..... .....	Pryser & Herman, 515 Union League Bldg., Los Angeles	Western Agencies, Inc., San Francisco	San Francisco
neral Railway Signal Co., Rochester, N. Y.	"G-R-S"	Cl	1/4	OwN	Sw	12	.....	8 to 18	C GI	\$140 to \$210	.....	.....	Mangrum & Otter Inc., 827 Mission St., San Francisco	Rochester, N. Y.
tz Power Washer Co., Morton, Ill.	"American Beauty"	O	1/4	Wx	M	11	.....	6 8	C C	\$125 \$155	\$135 \$165	Getz Washer Sales Co., 910 S. Grand Ave., Los Angeles	.....	Los Angeles
ysen Electric Co., 4008 Bloomingdale Ave., Chicago, Ill.	"Geyser"	Cl	1/4	Em Dom	L	11	.....	3 to 9	C GI	\$75 to \$175	\$85 to \$185	Jon Arnold, Westminster Hotel, Los Angeles	.....	Chicago, Ill.

WASHING MACHINE DIRECTORY

(CONTINUED)

Key to Abbreviations
 O—oscillating type
 VC—vacuum cup type
 Cl—cylinder type
 D—dolly type

Im—impeller type
 DFM—Dayton Fan & Motor Co.
 Wx—Westinghouse
 GE—General Electric

RM—Robbins & Myers
 Em—Emerson
 Dom—Domestic
 Cen—Century

L—Lovell
 W—wood
 M—metal
 Sw—swinging
 St—stationary

An—Anchor
 Am—American
 C—copper
 TC—tinned copper
 Cz—copper, zinc lined

GI—galvanized iron
 Z—zinc
 NP—Nickel Plated
 VM—various models

MANUFACTURER	TRADE NAME	Operation	MOTOR		WRINGER	Length in Inches	TUB			RETAIL PRICE		WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTOR	Nearest Point At Which Repair Part May Be Obtained.
			Horse Power	Maker			Dimensions	Capacity (Sheets)	Material	Eastern	West of Rockies			
Haag Bros. Co., Peoria, Ill.	"Haag"	D Cl O	1/4	GE RM Em	W	12	.....	6 6 7	W	\$86 to \$145	.....	F. H. McGinnis, 906 "J" St., Sacramento	F. H. McGinnis, Sacramento, Cal. A. M. Smith Co., Los Angeles	Sacramento, Cal.
Horton Mfg. Co., Fort Wayne, Ind.	"Horton"	VC D VC	1/4 1/6 1/4	GE GE GE	M M M	12 10 12	18x25 18x25	8 6 8	C W VE	\$160 \$80 \$165	.....		Baker Hamilton & Pacific Co., San Francisco A. A. Wilson, Los Angeles Schwabacher Hdw Co., Seattle Hexter & Co., Portland Salt Lake Hdw Co., Salt Lake City Holly Mason Hdw Co., Spokane Tritch Hardware Co., Denver	Distributors
Hurley Machine Co., 22nd St. & 54th Ave., Chicago, Ill.	"Hurley Thor"	CL	1/6 1/4	GE Wx	M	11 12	.....	6 to 12	C or GI or W C or GI or W	\$125 to \$275	\$135 to \$280	Hurley Machine Co. J. W. Ferry, 425 Rialto Bldg., San Francisco	Pacific States Electric Co., San Francisco, Los Angeles, Oak- land, Portland, Seattle, and Spokane	All branches of distributor
	"Hurley Superior"	O D	1/6 1/4	GE Wx	M or W	11 12	.....	6	C or GI or W	\$84 to \$145	\$145 to \$155			
Johnson Elec. Washer Co., 40th & Adeline Sts., Oakland, Cal.	"Johnson Impeller" "Johnson" "Johnson"	Im Im D	1/4 1/6 1/6	Wx Wx Wx	Sw St St	11 11 11	16x22 16x22 16x22	6 6 6	C C C	..... ..... .....	\$150 \$110 \$100	Johnson Elec. Washer Co., 40th & Adeline Sts., Oakland, Cal.	Same	Factory
Landers Frary & Clark, New Britain, Conn.	"Universal"	Cl	1/4	RM Wx	W	12	.....	6	GI C	..... .....	\$150 \$165	C. K. E. Watson Call Bldg., San Francisco	Electric Appliance Co., San Francisco, Los Angeles Baker Hamilton & Pacific Co., San Francisco Schwabacher Hdw Co., Seattle Electric Corporation, Los Angeles	San Francisco and Los Angeles
	"Whirlwave"	O	1/4	Wx	.....	12	18x26	8	C	\$135	\$150			
Maytag Co., The Newton, Iowa	"Maytag"	Cl	1/4	GE	Sw	12	22x22	6	A	\$150	\$160	Chas. H. Long, 315 Belmont, Portland	Schluter's, Los Angeles, San Francisco Holly-Mason Hdw Co., Spokane The Salt Lake Hdw Co., Salt Lake City Sloat Wholesale Co., Portland Southern Electrical Co., San Diego Stewart Wholesale Co., Boise, Idaho West Coast Sales Co., Oakland	Representative or Distributors
Meadows Mfg. Co., Bloomington, Ill.	"Meadow Lark" "Greyhound" "Master Washer"	Cl O Cl	1/4 1/4 1/4	RM and GE	M M M	11 11 11	18x20 18x28 18x20	6 8 6	GI C GI	\$135 \$155 \$150	\$145 \$165 \$160	L. A. Robinson, 1160 Orange Grove Ave., Los Angeles	Manufacturers Representatives Co., San Francisco and Los Angeles Fobes Supply Co., Portland, Seattle Capital Elec. Co., Salt Lake City Mine & Smelter Supply Co., Denver Butte Elec. Supply Co., Butte	All Jobber Representatives
Michigan Washing Mch. Co., Muskegon, Mich.	"Michigan Electric" "Electric Lady"	D O	1/4 1/4	GE GE	W W	10 12	..... .....	6 12	W C	\$85 \$150	\$85 \$150	.....	Heyman Weil Co., San Francisco Union Hdw. & Metal Co., Los Angeles	San Francisco and Los Angeles
Modern Laundry Mch. Co., Kansas City, Mo.	"Mola"	Cl	1/4	.....	W	12	.....	.....	.....	\$130	\$135	Geo. E. Prine, care of A. A. Wilson, 606 S. Spring St., Los Angeles	A. A. Wilson, 606 S. Spring St., Los Angeles	Los Angeles
New Era Elec. Corp., Hoboken Terminal "D," Hoboken, N. J.	"Modern Home Washer"	Cl	1/8	GE	An	12	19 1/2 x 19 1/2	6	GI	\$119	\$127.50	H. R. Basford Co., San Francisco	.....	San Francisco
One Minute Mfg. Co., Newton, Iowa	"One Minute"	Cl D	1/3 1/4	Dom Dom	Sw Sw	12	.....	6 6	C W	\$145 \$99	\$152 \$106.50	A. J. Ratelle, 619 Pine St., Seattle	Dohrman Commercial Co., Parmelee-Dohrman Co., Los Angeles	San Francisco
Puffer-Hubbard Mfg. Co., 2601-32nd Ave. S., Minneapolis, Minn.	"Daylight"	VC	.....	Em	W M	12 12	.....	.....	C W	\$155	\$165	Puffer-Hubbard Mfg. Co., 207 Railway Exchange, Portland	.....	.....
Sunbeam Elec. Mfg. Co., Evansville, Ind.	"Sunbeam"	O	1/6	Wx	M	12	19x23	8 6 18	C	\$155 \$129.50 \$215	\$162.50	F. M. Hills, 516 Bancroft Blvd., San Diego	.....	San Francisco
Sunny Line Appliances, Inc., 4058 Beaufait Ave., Detroit, Mich.	"Sunnysuds"	O	1/4	Dom	M	12	.....	.....	C	\$125	\$135	.....	Commercial Associates, Inc., 754 N. Spring St., Los Angeles Poole Elec. Co., 1206-4th Ave., Seattle	.....
Syracuse Washing Mch. Corp., Syracuse, N. Y.	"Easy Vacuum Elec. Washer"	VC	1/6	GE RM	M	12	.....	8	C GI NP	\$155 \$125 \$139	\$165 \$135 \$149	J. Lee Richards, Syracuse Washing Mch. Sales Co., 180 New Montgomery St., San Francisco	.....	San Francisco
The "1900" Washer Co., Binghamton, N. Y.	"Cataraction"	O	1/4	RM	Sw	.....	.....	8	.....	\$155	\$165	W. Lee Holmes, 71 New Montgomery St., San Francisco	.....	.....
Western Electric Co., New York City	"Western Electric"	Cl	1/6	Owa	Sw	11 1/2	22x23	6	GI TC	\$125 \$145 \$155 \$175	\$135 \$155 \$165 \$185	Western Electric Co., San Francisco, Los Angeles, Oakland, Seattle, Tacoma, Portland, Spokane, Denver, Salt Lake City	Western Electric Co., San Francisco, Los Angeles, Oakland, Seattle, Tacoma, Portland, Spokane, Denver, Salt Lake City	All Branch Offices
White Lily Mfg. Co., Davenport, Iowa	"White Lily DeLuxe"	Cl	1/4	GE	.....	.....	.....	6	GI C	.....	.....	H. J. Valentine, 488 N. Cypress, Burbank, Cal.	.....	Factory
H. E. Williamson Co., 22 Grace St., San Francisco	"California Maid"	Cl	1/6	Cen	Sw	11	18x26	8	GI	.....	\$125	H. E. Williamson Co., San Francisco	.....	San Francisco
Woodrow Mfg. Co., Newton, Iowa	"Woodrow"	D	1/6	Em	Sw	12	.....	6	W	\$102	\$110	.....	W. E. Dooley & Co., 804 Pine St., Seattle A. A. Wilson, 719 S. Spring St., Los Angeles	Distributors

ELECTRIC IRONER DIRECTORY

Published and Copyrighted by the Journal of Electricity, October 15, 1923

A list of Electric Ironer Manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way, mention the **Journal of Electricity**.

Key to Abbreviations

E—electric heat
G—gas heat
Ga—gasoline heat
Wx—Westinghouse

GE—General Electric
R&M—Robbins & Myers
Dom—Domestic

WE—Western Electric
B—belt drive
G—gear drive

FC—foot control
HC—hand control
A—automatic
VM—various models

MANUFACTURER	TRADE NAME	Shipping Weight (lbs.)	Dimensions (Iron space)	Length of Roll (in.)	Heat for Rolls	Wattage for Rolls	MOTOR		Drive	Control	Speeds	PRICE		WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point At Which Repair Parts May Be Obtained.
							Make	H. P.				East	West of Rockies			
Porter Bros. Co. Peoria, Illinois	"A. B. C."	291 355	33x25	26 44	E G G	1350 2700	Wx Wx	1/6 1/6	B B	FC FC	.... ....	\$145 \$125 \$200 \$165	\$155 \$135 \$210 \$175	W. E. Peters 89 E. 12th St., Portland	A. A. Wilson 612 S. Spring St., Los Angeles E. W. Murray Lighting Co. 313 Riverside Ave., Spokane Richter Sales Co. 310 Stewart St., Seattle The Electric Service Co. 175 Park St., Portland	Western Distributors
American Ironing Machine Co. 44 W. Adams St., Chicago, Ill.	"Simplex"	VM	VM	26 to 56	E G Gn	VM	.....	.....	B	HC	1 and 2	VM	VM	H. R. Basford Co. 180 New Montgomery St., San Francisco	H. R. Basford Co. San Francisco Fobes Supply Co. Portland, Seattle Woodfill-Hulse Elec. Co. 111 E. 3rd St., Los Angeles	San Francisco
Apex Appliance Co. 223 W. 30th St., Chicago, Ill.	"Apex"	511 526	26x54	44 48	E G Gn	3200	GE R&M Wx	1/6	G	FC	....	\$160	\$170	A. M. Smith Co., 219 W. 3rd St., Los Angeles	A. M. Smith Co., 219 W. 3rd St., Los Angeles	Los Angeles
Apex Elec. Distribg. Co. 1067 E. 152nd St., Cleveland, Ohio	"Rotarex"	325	22x60	46	E G	3000	Own	1/6	B	FC	1	\$152.50 (Cash) \$167.50 (Time)		G. A. Buckley 1405 Walnut St., Kansas City, Mo.	Apex Elec. Distrib. Co. 681 Market St., San Francisco 1437 Welton St., Denver 2011 Broadway, Oakland 1024-11th St., Sacramento 2117 Iroy St., Fresno Illinois Elec. Co. Los Angeles North Coast Elec. Co. Portland and Seattle Electrical Equip. Co. Butte, Montana Intermountain Elec. Co. Salt Lake City	Western Distributors
Ennett Foundry & Machine Co. Livingston, N. J.	"Capitol"	470	60x24	46	E G Gn	2700	.....	1/6	B	FC	....	\$155	\$170			Factory
Living Mfg. Co. 1005 Euclid Ave., Cleveland, Ohio	"Deming"	250	57x24	46	E G	2400	Ohio	1/8	B	HC	....	\$160 \$117.50				
Landmaid Co. Holland, Mich.	"Hollandmaid"	280	57x24	48	E G	.....	GE	1/6	G	FC	....	\$150	\$160			Factory
Horton Mfg. Co. Fort Wayne, Ind.	"Horton"	320	22x42	30	E G	2000	GE	1/6	B	FC	....	\$140			A. A. Wilson Los Angeles Salt Lake Hdwe Co. Salt Lake City Hexter & Co. Portland Schwabacher Hdwe Co. Seattle Holley-Mason Hdwe Co. Spokane	Factory
Key Machine Co. Chicago, Ill.	"Thor Automatic"	565	54x25	44 or 50	E G Gn	1500	GE or Wx	1/6	G	A	2	\$165	\$180	J. W. Ferry 425 Rialto Bldg., San Francisco	Pacific States Elec. Co. San Francisco, Oakland, Seattle, Portland, Los Angeles and Spo- kane	Western Distributors
"1900" Washer Co. Binghamton, N. Y.	"1900"	450	27x53	44	G E Gn	2500	R&M	1/10	G	FC	....	\$160	\$175	W. Lee Holmes 71 New Montgomery St., San Francisco	W. Lee Holmes 71 New Montgomery St., San Francisco	San Francisco
Stich & Uhlig Co. Detroit, Mich.	"Ironrite"	410	26x63	46	E G	3500	Dom	1/4	G	FC	....				Poole Electric Co. 1206 Fourth Ave., Seattle	
Union Cabinet & Mac. Co. Rochester, N. Y.	"Union"	290	56x21	46	G	.....	GE	1/8	G	HC	....	\$160				Factory
Utensils Co. 13 E. Columbus St., Fort Wayne, Ind.	"Utenco"	310	24x42	24	E G Gn	2750	GE	1/6	G	FC A	....	\$175 \$155 \$165		Kenneth Wollson 1405 S. Hill St., Los Angeles	Listenwaller & Gough Los Angeles West Coast Sales Co. Oakland	Los Angeles or Oakland
Western Electric Co. New York City	"Western Electric"	198	37x24	28	G	.....	WE	1/10	G	FC HC	....	\$125	\$140	Western Electric Co. 680 Folsom St., San Francisco	Western Elec. Co. San Francisco, Los Angeles, Oak- land, Portland, Seattle, Tacoma, Spokane, Denver, and Salt Lake City	All Branch Offices
F. Zieg Mfg. Co. Fredericktown, Ohio	"Buckeye"	350	24x48	46	E G Gn	2500	GE	1/6	G	FC	\$140	\$150		W. E. Dooley & Co. Seattle, Wash.	Seattle

ELECTRIC RADIATOR AND HEATER DIRECTORY

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A list of Electric Radiator and Heater Manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way, mention the *Journal of Electricity*.

Key to Abbreviations

B—Bronze
Br—Brass
C—Copper

Nk—Nickel
BS—Blue Steel
OI—Old Ivory

En—Enamel
Po—Portable
Pd—Pendant

St—Stationary
Fr—Fireplace
VM—Various Models

NAME OF MANUFACTURER	TRADE NAME	Dimensions in Inches	Reflector Dimen. (Inches)	FINISH		Type	HEATING ELEMENT						PRICE		WESTERN SALES REPRESENTATIVES	WESTERN DISTRIBUTORS	Nearest Point Which Repair P Can Be Secured
				Heater	Reflector		Number of Elements	Total Wattage	No. of Heats	Removable Elements	Fits Edison Socket	Last	West of Rockies				
Edison Elec. Appliance Co., Ontario, California.	"Hedlite" (High Wattage)	20x15 VM	14 VM	B OI En En	C	Po	1 	630 1000 to 5000	1 1 to 3	Yes 	Yes No	..... .....	\$7.95 to \$16.50 \$26.00 to \$56.00	Edison Elec. Appl. Co., Inc., Ontario, Calif. San Francisco Los Angeles Portland Seattle	All Leading Jobbers.	Ontario, Calif. San Francisco Los Angeles Portland Seattle
Elec. Heatg. & Mfg. Co., Westlake & Republican Sts. Seattle, Wash.	"Circo- Flector" "100% Radiator"	15x9	9 1/4	C En	C	Po	1 3 to 6	660 1200 to 8000	1 3 to 6	Yes No	Yes No	..... .....	\$8.00 \$20.00 to \$75.00	Elec. Htg. & Mfg. Co., Seattle	Eastern Mfrs. Co., Portland Wholesale Electric Co., San Francisco Seattle-Astoria Iron Wks., San Francisco	Seattle
Estate Stove Co., The Hamilton, Ohio	"Estate"	17x 8	9 1/2	B En	B	Po	1	660	1	Yes	No	\$7.50	\$8.00	The Estate Stove Co., Furn. Exchge. Bldg., San Francisco	The Estate Stove Co., San Francisco	Factory	
Even Heat Elec. Co., 2429 Canton Ave., Detroit, Mich.	"Even Heat"	17x 9 .....	.....	En	N	Po	2	660	1	Yes	....	\$9.50	.....	Karpp Sales Co., 1160 Pine St., San Francisco	Karpp Sales Co., San Francisco Tacoma Mercantile Co., Tacoma North West Sales Co., St. Paul, Minn.	St. Paul, Minn.
Fitzgerald Mfg. Co., The Winsted, Conn.	"Model C" "Model D"	18x14 17x12	14 12	En En	C C	Po Po	1 1	600 600	1 1	Yes Yes	Yes Yes	..... .....	.....	A. S. Chernoff Co., 41 Fell St., San Francisco		San Francisco
A. C. Gilbert Co., The New Haven, Conn.	"Polar Cub"	13x11	11	En	C	Po	1	550	1	Yes	Yes	\$5.00	\$5.25	H. E. Iblings, 4816 Franklin Ave., Los Angeles	In all large cities.	Distributors	
Haber Die & Stamping Co., Chicago, Ill.	"The Sun"	19x14	14	En	C	Po	1	575	1	Yes	Yes	\$8.50	\$8.85	H. J. Gute & Co., San Francisco R. M. Burton Sales Agcy., Alaska Bldg., Seattle Leo Rahin, 1516 S. Union Ave., L. A.		Sales Represent- tives	
W. Wesley Hicks, Rialto Bldg., San Francisco	"Wesix"	VM .....	.....	.....	.....	Po St. Fr	VM 800 to 6000	3	.....	.....	.....	.....	.....	W. Wesley Hicks, Rialto Bldg., San Francisco	All Jobbers	San Francisco
Landers, Frary & Clark, New Britain, Conn.	"Universal" and "Thermax"	16x12 and 18x14	12 and 14	B En	C	Po	1	625	1	Yes	Yes	\$7.50 to \$11.50	\$7.50 to \$11.50	Landers, Frary & Clark 335 New Call Bldg., San Francisco	Electric Appliance Co., San Francisco The Electric Corp., Los Angeles, Seattle, Portland Fobes Supply Co., Seattle, Portland Hdwe. Jobbers	Universal Service Stations San Francisco, Los Angeles, Seattle	
Majestic Elec. Appl. Co., Inc., 590 Folsom St., San Francisco	"Majestic" "Radiant"	16x12	11 1/4	En	C	Po	1	615	1	Yes	Yes	\$9.50	\$9.50	Majestic Elec. Appl. Co., San Francisco	All Jobbers	Jobbers	
		19x14	12 1/2	En	C	Po	1	615	1	.....	.....	\$10.50	\$10.50			
		15x15	.....	Nk	C	Po	2	760	1	Yes	No	\$25.00	\$25.00			
		19x14	12 1/2	En	C	Po	2	960	1	.....	.....	\$13.50	\$13.50			
	"Radiant- Convection"	17x22 20x28 9x35	..... ..... .....	B Br C	..... ..... .....	St Fr St	..... ..... .....	2000 4000	3	No	No	\$40.00 to \$115.00	\$40.00 to \$115.00			
L. Plut & Co., 432-E. 23rd St., New York City	"Double Ray"	7x8	8 3/4	Br	C	Po	.....	600	1	Yes	Yes	\$8.50	\$8.50	Ralph A. Ryan 417 Montgomery St., San Francisco	Reiman Whse. Elec. Co. Los Angeles	New York City
Prometheus Elec. Co., 511-W. 42nd St., New York City	"Prometheus"	18x3	.....	B	.....	Po	5	1000	3	Yes	No	\$25.50	\$25.50	M. E. Hammond, Pacific Bldg., San Francisco		New York City
Roheson Rochester Corp., 176 Anderson Ave., Rochester, N. Y.	"Royal- Rochester"	18x14	14	En	C	Po	1	600	1	Yes	Yes	\$10.50	\$10.50			Rochester, N. Y.	
Russell Electric Co., 340 W. Huron St., Chicago, Ill.	"Hold Heat"	24x11	.....	BS	.....	.....	1	500	1	Yes	No	\$2.50	\$2.50	J. G. Pomeroy, 336 Azusa St., Los Angeles.	Alexander & Lavenson, San Francisco North Coast Electric Co., All Branches United Elec. Supply Co., Salt Lake City Elec. Equipment Co., Butte, Mont.	Jobbers Stock
Rutenber Elec. Co., Marion, Ind.	"Marion"	18x13	11 1/4	En	C	Po	1	615	1	Yes	No	\$10.00	\$10.00	Atlantic-Pacific Sales Co., 646 Mission St., San Francisco	Atlantic-Pacific Sales Co., San Francisco	San Francisco	
Scheeline Mfg. Co., 76 Tehama St., San Francisco	"Hulbert"	VM	.....	.....	.....	VM	VM	660 to 6600	.....	.....	.....	.....	\$35 to \$250	Scheeline Mfg. Co., San Francisco		San Francisco
Simplex Elec. Heatg. Co., 85 Sidney St., Cambridge, Mass.	"Sunbowl"	20x14	14	En	C	Po	1	600	1	Yes	No	\$11.00	\$11.00	R. C. W. Libbey, P.O. Box 793 Main Office, San Francisco	Universal Elec. Co., San Francisco, Reiman Whse. Elec. Co., Los Angeles M. Soller & Co., Portland	Distributors	
	"Sunbowl Jr."	13x11	10 1/2	En	C	Po	1	600	1	Yes	No	\$7.00	\$7.00				

ELECTRIC RADIATOR AND HEATER DIRECTORY

(CONTINUED)

Key to Abbreviations

B—Bronze
Br—Brass
C—CopperNk—Nickel
BS—Blue Steel
OI—Old IvoryEn—Enamel
Po—Portable
Pd—PendantSt.—Stationary
Fr—Fireplace
VM—Various Models

NAME OF MANUFACTURER	TRADE NAME	Dimensions in Inches	Reflector Diameter (Inches)	FINISH		Type	HEATING ELEMENT					PRICE		WESTERN SALES REPRESENTATIVES	WESTERN DISTRIBUTORS	Nearest Point at Which Repair Parts Can Be Secured.
				Heater	Reflector		Number of Elements	Total Wattage	No. of Heats	Removable Elements	Fits Edison Socket	East	West of Rockies			
Parling Elec. Prod. Co. 2 Letchworth St., Buffalo, N. Y.	"Hot Glow"	20x20 30x30	.....	.....	C	Fr	3	1400	3	.....	No	.....	.....	Regan & Koehler, 240 Rialto Bldg., San Francisco P. C. Koehler, 1207 Washington Bldg., Los Angeles		
Stoughton Mfg. Corp., Stoughton, Wis.	"Hot Breeze"	.....	.....	.....	Nk	Po	1	600	1	Yes	.....	\$6.00	\$6.00			Factory
Tratt & Richards, Inc. Fabyan Place, Newark, N. J.	"Gloglog"	.....	.....	.....	En	Fr	2	2000	2	Yes	.....	\$35.00	\$40.00	Atlantic & Pacific Sales Co. 646 Mission St., San Francisco	Atlantic & Pacific Sales Co. San Francisco Silver State Elec. Co. Denver	San Francisco
Westinghouse Elec. & Mfg. Co. 1st Natl. Bank Bldg., San Francisco	"Cozy Glow"	18x14	14	En	C	Po	1	600	1	Yes	Yes	\$10.50	\$10.50	Fobes Supply Co., San Francisco, Portland, Seattle Illinois Elec. Co. Los Angeles	Westinghouse Agent Jobbers	Jobbers & Dealers
Wardell Corp. Utica, N. Y.	"A-Little- Warmer"	18x10	Nk	Po	1	660	1	\$7.50	\$7.50			Factory

VACUUM CLEANER DIRECTORY

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A list of vacuum cleaner manufacturers giving catalog information on the equipment of each, with complete list of Western distributing agencies, as well as points where repair parts may be secured. The publisher does not guarantee this information, but to the best of our knowledge and belief it is correct at date of publication. When referring to this list in any way, mention the Journal of Electricity.

Key to Abbreviations

SW—sweeper type
TR—truck type
ST—stationary typeSh—switch on handle
Sc—switch on cord
Sm—switch on motor
Sf—switch on frameR—rotating
Rg—gear driven
Rs—shaft drive
Re—chain driveBm—belt to motor
Bw—belt to wheels
S—stationary
V—vertical mountedH—horizontal mounted
GE—General Elec. Co.
Dom—Domestic Elec. Co.
R&M—Robbins & MyersWx—Westinghouse
Berco—Birtman Elec. Co.
t—eastern price plus freight
*—price includes attachments

MANUFACTURER	TRADE NAME	Weight (in lbs.) Style Brush			MOTOR			RETAIL PRICE				WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point At Which Repair Parts May Be Secured.		
					Make	H.P.	Mounted	Switch Control	Attachments	Attachments					Cleaner	
										East	West				East	West
Apex Electrical Mfg. Co., 1067 E. 152nd St., Cleveland, Ohio	"Apex"	105	SW	ST	Own	1/12	H	Sh	7	\$10.00	\$11.00	\$57.50	\$63.25	G. A. Buckley, 1405 Walnut St., Kansas City, Mo.	Fobes Supply Co., Seattle, Portland Illinois Elec. Co., Los Angeles Elect. Equip. Co., Butte Intermountain Elec. Co., Salt Lake City	Distributors
Birtman Electric Co., Lake & Desplaines Sts., Chicago, Ill.	"Magnetic Housecleaner"	123	SW	S	Berco	1/6	H	Sh	6	.....	.....	\$76.00	\$76.00	H. J. Gute, Division Mgr., 150 Post St., San Francisco	H. J. Conrad, 317 No. Oxford St., Los Angeles Chas. H. Hanke, 150 Post St., San Francisco J. B. Howell, Berkeley C. M. Mackenzie, 1507 Cabrillo, Torrance, Calif. L. A. MacLean, Oakland Thos. P. Reid, San Diego	San Francisco
	"Bee-Vac"	11	SW	S	Berco	1/6	H	Sh	5	.....	.....	\$39.75	\$39.75	H. J. Gute & Co., 150 Post St., San Francisco J. F. Kitchen, 1325 So. Harvard Blvd., Los Angeles	Through Leading Jobbers	San Francisco and Los Angeles
Elements Mfg. Co., 601 Fulton St., Chicago, Ill.	"Cadillac"	12	SW	S	Own	1/4	H	Sh	7	\$10.00	\$12.50	\$55.00	\$60.00	S. F. Compressed Air Co., San Francisco, Los Angeles	F. E. Spencer, 733 W. 8th St., Los Angeles Heyman-Weil Co., San Francisco Ray Bentley, 219 Worcester Bldg., Portland	From any distributor.
F. Bissell Co., 812 Lafayette St., Toledo, Ohio	"Bissell New HomeCleaner"	123	SW	.....	Own	.....	H	Sh	8	.....	\$10.00	.....	\$60.00	Atlantic-Pacific Sales Co., 646 Mission St., San Francisco	Same	The F. Bissell Co., Toledo, Ohio
	"Bissell Super-Service"	.....	SW	.....	Own	1/3	H	Sm	7	.....	.....	\$99.50	\$99.50	.....	I. S. Cohen's Sons, 1015 Market St., San Francisco	San Francisco and Los Angeles
	"Bissell School"	25	SW	.....	Own	1/3	H	Sm	8	.....	.....	\$125	\$125	.....	F. E. Spencer, 8th & Flower Sts., Los Angeles	
Eclipse Machine Co., Sidney, Ohio	"Eclipse"	10	SW	Rg	GE	.....	V	Sh	7	.....	.....	\$45.00	\$50.00	Sprake Sales Co., Inc., American Bank Bldg., Los Angeles	Same	Sprake Sales Co., Los Angeles and their branches.
Johnson Elec. Appliance Co., 5600 Taylor St., Chicago, Ill.	"Hotpoint"	11	SW	S	GE	1/5	H	Sh	8	\$10.00	t	\$49.50	t	P. H. Booth, District Sales Mgr., Ontario, Calif. B. E. Rowley, District Sales Mgr., 60 East First South St., Salt Lake City		Ontario 155 New Montgomery St., San Francisco 1526-8th Ave., Seattle 412½ Stark St., Portland 60 East First South St., Salt Lake City

VACUUM CLEANER DIRECTORY

(CONTINUED)

Key to Abbreviations
SW—sweeper type
TR—truck type
ST—stationary type

Sh—switch on handle
Sc—switch on cord
Sm—switch on motor
Sf—switch on frame

R—rotating
Rg—gear driven
Rs—shaft drive
Rc—chain drive

Bm—belt to motor
Bw—belt to wheels
S—stationary
V—vertical mounted

H—horizontal mounted
GE—General Elec. Co.
Dom—Domestic Elec. Co.
R&M—Robbins & Myers

Wx—Westinghouse
Berco—Birtman Elec. Co.
t—eastern price plus freight
*—price includes attachments

MANUFACTURER	TRADE NAME	Weight (in lbs.)	Style	Brush	MOTOR			Switch Control	Attachments	RETAIL PRICE				WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point At Which Repair Parts May Be Secured.
					Make	H.P.	Mounted			Attachments		Cleaner				
										East	West	East	West			
Elec. Vacuum Cleaner Co., Ivanhoe Road, Cleveland, Ohio	"Premier Duplex" Model 21 "Handy"	12½ 11 6½	SW SW S	Bm R S	GE type 1/8 1/8	1/10 V H	Sh Sh H	8 8 5	\$10.00 \$10.00 \$10.00	\$11.00 \$11.00 \$12.50	\$60.00 \$42.50 \$35.00	\$70.00 \$52.50 \$55.00		Pacific States Electric Co., San Francisco Capital Electric Co., Salt Lake City	San Francisco and other Western Cities.	
Eureka Vacuum Cleaner Co., Hamilton & Dewey Aves., Detroit, Mich.	"Eureka"	11	SW	S	Own	1/5	H	Sh	5	.....	.....	\$45.00	\$55.00	Eureka Vacuum Cleaner Co., 128 Post St., San Francisco	Woodill Hulse Elec. Co., Los Angeles Poole Electric Co., 1206-4th Ave., Seattle Eureka Vacuum Cleaner Co., 162 S. Post St., Spokane	From Factory Branch or from any Distributor.
Federal Electric Co., 8700 So. State St., Chicago, Ill.	"Federal"	13	SW	Rc	Own	1/6	V	Sh	6	\$8.00	\$8.50	\$55.00	\$60.00 \$65.00	Federal Electric Co., 91 New Montgomery St., San Francisco	Same	All Pacific Coast Job bing Points.
The P. A. Geier Co., 540 East 105th St., Cleveland, Ohio	"Royal"	11	SW	S	Dom	.....	H	Sh	8	\$10.00	\$13.50	\$55.00	\$60.00	G. S. Rigden, care of Listenwaller & Gough, Inc., 940 Mission St., San Francisco	Capital Electric Co., 310 W. 2nd St., Salt Lake City Creighton, Morris & McCorkle, 53-4th St., Portland Listenwaller & Gough, Inc., 819 E. 1st St., Los Angeles 940 Mission St., San Francisco	From any distributor.
Hamilton Beach Mfg. Co., 1501 Rapids Drive, Racine, Wis.	"Hamilton Besch"	15	SW	Bm R	Own	1/5	H	Sh	8	\$12.50	.....	\$58.50	\$60.00	J. E. Kamps, 1157 E. Broadway, Long Beach, Cal.	Sold direct to Dealers.	Electric Mfg. Co., 966 Mission St., San Francisco Gans Bros., 141 S. Mai St., Los Angeles
The Hoover Co., North Canton, Ohio	"Hoover" Model 103 Model 541 Model 961	16½ 15½ 30½	SW SW SW	Bm Bm Bm	Own Own GE	.08 .09 .17	V V V	Sm Sm Sm	7 7 7	\$12.50 \$12.50 \$15.00	\$13.50 \$13.50 \$16.50	\$52.50 \$65.00 \$150	\$60.00 \$74.00 \$160	H. G. Glass, Geary & Leavenworth Sts., San Francisco		San Francisco San Francisco San Francisco
Hurley Machine Co., 22nd St. & 54th Ave., Chicago, Ill.	"Hurley- Thor"	15½	SW	Rs	GE	1/7	V	Sh	8	\$12.50	\$12.50	\$70.00	\$70.00	Hurley Machine Co., 425 Rialto Bldg., San Francisco	Thor Shops 154-5th St., Portland 222 Pine St., Seattle 124 Post St., San Francisco 306 W. 7th St., Los Angeles Fox Theatre Bldg., Oakland	Thor Shops
The Kent Co., Inc., 583 W. Dominick St., Rome, N. Y.	"Kent Vacuna"	32, 48, & 72	TR & ST	S	Wx	1/5 & up	V	Sf & up	10 & up	.....	.....	\$130 & up	\$130 & up	Illinois Electric Co., Los Angeles F. A. Tanner, 77 O'Farrell St., San Francisco	.....	Rome, N. Y.
Landers Frary & Clark, New Britain, Conn.	"Universal"	12	SW	.....	Own	1/8	H	Sh	7	\$10.00	\$10.00	\$57.50	\$57.50	Landers Frary & Clark, 335 New Call Bldg., San Francisco	Through Jobbers	San Francisco, Los Angeles
Pneuvac Co., 164 Fremont St., Worcester, Mass.	"Sweeper- Vac"	15	SW	R & Rg	Dom	1/5	H	Sh	7	\$10.50	\$11.00	\$57.50	\$60.00	F. W. Biven, 362 Jayne Ave., Oakland	Schleuter Commercial Co., 1175 Market St., San Francisco A. Schleuter & Co., 1314 Washington St., Oakland A. A. Wilson, Los Angeles Sloat Wholesale Co., 330 East Morrison, Portland, Ore.	
The Regina Corp., Rahway, N. J.	"Regina Electric Home Cleaning Machine"	12	SW	S	GE	1/12	.....	Sh	8	.....	.....	\$69.75	\$69.75	The Regina Corp., 589-13th St., Oakland, Calif. Also Los Angeles, San Bernardino, Santa Ana, California.	.....	Oakland, Los Angeles, San Bernardino, Santa Ana.
B. F. Sturtevant Co., Hyde Park, Boston, Mass.	"Sturtevant"	25 to 36	TR	S	.....	1/6 to 3	H	Sc	4 to 8	\$33.00 & up	.....	\$125 to \$1122	.....	B. F. Sturtevant Co., San Francisco, Los Angeles, Port- land, Seattle.		
The Torrington Company, Torrington, Connecticut	"Torrington"	12½	SW	R	GE	1/5	H	Sh	9	.....	.....	\$59.75	\$66.60	The Torrington Co., 938 Mission St., San Francisco 1305 S. Figueroa St., Los Angeles 70 Sixth St., Portland, 418 Ness Bldg., Salt Lake City	.....	From all western bran- ches.
Wise, McClung Mfg. Co., for Sunshine Sales Co., New Philadelphia, Ohio	"Sunshine"	11½	SW	S	Dom	1/4	H	Sh	6	.....	.....	.....	.....	United Vacuum Cleaner Stores, Main Office, Fresno, Calif. Mine & Smelter Supply Co., Denver, Colo.	Fresno and Denver.	
The Wise McClung Mfg. Co., New Philadelphia, Ohio	"America"	11½	SW	Bw	Arrow	1/8	V	Sf	6	.....	.....	.....	\$65.00	C. E. MacNichols, 203-14th Ave. N., Seattle, Wash.	Western Agencies, Inc., 711 Mission St., San Francisco Los Angeles Electric Service Co., 175 Park St., Portland Burghardt & Hauff Elec. Co., 1007-1st Ave., Seattle Salt Lake Hdq. Co., Salt Lake City	San Francisco and Portland.
	"Columbia"	11½	SW	Bw	Arrow	1/5	V	Sh	6	.....	.....	.....	\$70.00	Manufacturers Representatives Co., San Francisco and Los Angeles	Manufacturers Representatives Co., San Francisco and Los Angeles Getz Washer Sales, Los Angeles	San Francisco and Los Angeles
M. S. Wright Co., Worcester, Mass.	"Western Electric"	15	SW	Bm	Dom	1/8	H	Sh	6	\$10.50	\$11.00	\$57.50	\$60.00	Western Electric Co.	Western Electric Co., San Francisco, Los Angeles, Seattle, Portland, Denver, Salt Lake City	All offices.

ELECTRIC RANGE DIRECTORY

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A list of Electric Range Manufacturers giving catalog information on the equipment of each, with list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way mention the Journal of Electricity.

NAME OF MANUFACTURER	TRADE NAME	Model or Catalog No.	Type of Unit O—Open C—Enclosed	Floor Area	Height from Floor	Oven Dimensions	HEATING UNITS										WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point at Which Repair Parts May be Secured		
							DIMENSIONS				WATTAGE										
							SURFACE		OVEN		SURFACE			OVEN						TO L	Temperature Control
							Large	Medium	Medium	Small	Shimmer	Small	Medium	Large	Medium	Small						Total Wats	Surface Units	Oven	Broiler	Maximum Wattage
Edison Elec. Appliance Co., Chicago, Ill.	"Hotpoint Hughes"	RS- 67 R- 79 R- 79 R- 75 R- 63 R- 85 R- 87 R- 101 R- 105 R- 109	O O O O O O O O O O	28½x52½ 28½x52½ 28½x52½ 28½x52½ 28½x52½ 28½x52½ 28½x52½ 25 x44 31½x24 21½x57½	57 64 70 41 33 33 41 33 33 33	18x18x14 18x18x14 18x18x14 18x18x14 18x18x14 18x18x14 18x18x14 10x12x18 10x12x15 10x12x15	2-12x12 4-12x12 12x12 12x12 12x12 12x12 12x12 9x12 9x12 9x12	Large Medium Medium Small Shimmer	1500 1500 1500 1500 1500 1500 1500 1000 2000 2000	1000 1000 1000 1000 1000 1000 1000 3000 3000 3000	4500 4500 4500 4500 4500 4500 4500 3000 3000 3000	2-1500 4-1500 1500 1500 1500 1500 1500 1900 1100 1100	7500 12500 9000 6500 6500 6500 6500 5400 5200 5200	AC C C C C C C T T T	\$235.50 223.50 210.00 325.00 247.00 174.00 161.50 175.00 99.00 76.75 84.25	Edison Elec. Appl. Co., San Francisco, Los Angeles, Seattle, Portland and Ontario, Cal.	All sales offices				
Electrahot Appliances, Incl., 301 Fifth Ave., South Minneapolis, Minn.	"Electrahot"	B- 57	O	25 x43½	30	15x15x19 7½	10x15	Large	1500	1000	4500	1500	1500	7500	C	\$135.00	R. M. Burton Alaska Bldg., Seattle	Seattle and San Francisco			
Estate Stove Co., The Hamilton, Ohio	"Estate"	84 88 81 79 83 80 82 78	C C C C C C C C	56 x28 56 x25 51 64 x23 53 29 x10 54 30 x26 18x18x12 23½x18 28½x18	58 55 55 55 55 55 55 43	18x18x12 18x18x12 18x12x12 18x18x12 18x12x19 18x12x19 12x11x17	16x18 12x18 16x18 12x18	Large	1500 1500 1500 1500 1500 1500 1500	1100 1000 1000 1000 1000 1000 1000	650 650 650 650 650 650 650	3300 3300 3300 3300 3300 3300 3300	1500 1500 1500 1500 1500 1500 1500	9650 7800 7800 7800 7800 7800 7800	E E E E E E E	..... ..... ..... ..... ..... ..... .....	The Estate Stove Co., Furniture Exchange, San Francisco	Factory		
Landers, Frary & Clark, New Britain, Conn	"Universal"	E- 91 E- 92 E- 95 E- 96 E- 93 E- 94 E- 90 E- 98 E- 99	C C C C C C C C C	27 x43½ 27 x43½ 27 x43½ 27 x43½ 27 x43½ 27 x43½ 27 x43½ 27 x43½ 27 x43½	52 58 40 40 40 40 40 38 38	14x14x19 14x14x19 14x14x19 14x14x19 14x14x19 14x14x19 14x14x19 14x14x19 14x14x19	12x18 12x18 12x18 12x18 12x18 12x18 12x18 12x18 12x18	Large	1500 1500 1500 1500 1500 1500 1500 1500 1500	1000 1000 1000 1000 1000 1000 1000 1000 1000	4500 4500 4500 4500 4500 4500 4500 4500 4500	2000 2000 2000 2000 2000 2000 2000 2000 2000	8000 8000 8000 8000 8000 8000 8000 8000 8000	E E E E E E E E E	\$200.00 215.00 175.00 190.00 165.00 180.00 150.00 150.00 140.00	Landers, Frary & Clark, 335 New Call Bldg., San Francisco	Universal Service Stations San Francisco Los Angeles Seattle				
Magee Furnace Co., Boston, Mass.	"Electric- Coal" "Electric Alliance"	..... ..... ..... ..... ..... ..... ..... ..... .....	C C C C C C C C C	43½x26½ 43½x26½ 43½x26½ 43½x26½ 43½x26½ 43½x26½ 43½x26½ 43½x26½ 43½x26½	33 33 33 33 33 33 33 33 33	16x12x13 16x12x13 16x12x13 16x12x13 16x12x13 16x12x13 16x12x13 16x12x13 16x12x13	9 9 9 9 9 9 9 9 9	Large	1500 1500 1500 1500 1500 1500 1500 1500 1500	1000 1000 1000 1000 1000 1000 1000 1000 1000	3500 3500 3500 3500 3500 3500 3500 3500 3500	1500 1500 1500 1500 1500 1500 1500 1500 1500	6500 6500 6500 6500 6500 6500 6500 6500 6500	E E E E E E E E E	\$450.00 450.00 440.00 440.00 440.00 440.00 440.00 440.00 440.00	Dealers and Central Stations	Sao Francisco			
Majestic Electric Appliance Co., 590 Polson St., San Francisco, Cal.	"Majestic"	1000 1001 1002	O O O	21½x47 21½x47 21½x47	48 48 48	18x18x14 18x18x14 18x18x14	14x14 14x14 14x14	Large	1500 1500 1500	1000 1000 1000	4500 4500 4500	1300 1300 1300	1700 1700 1700	7500 7500 7500	E E E	\$160.00 180.00 200.00	Majestic Elec. Appl. Co., San Francisco, Kansas City, Mo.	All Central Stations and Jobbers	San Francisco and Kansas City		
Geo. D. Roper Corp., Rockford, Ill.	"Roper"	2001 2002 2003 2022 2005 2009 2012	C C C C C C C	43 x26 38 x26 31 x26 43 x26 29 17½x17½ 28 x17 40 x17	32 30 33 29 22 22 22 22	16x16x18 16x16x18 16x16x18 16x16x18 16x16x18 16x16x18 16x16x18 16x16x18	12x16 12x16 12x16 12x16 12x16 12x16 12x16 12x16	Large	1500 1500 1500 1500 1500 1500 1500 1500	1000 1000 1000 1000 1000 1000 1000 1000	4800 4800 4800 4800 4800 4800 4800 4800	1650 1650 1650 1650 1650 1650 1650 1650	7500 7500 7500 7500 7500 7500 7500 7500	..... ..... ..... ..... ..... ..... ..... .....	C. B. Babcock Co., San Francisco P. B. Taylor, Marsh Strong Bldg., Los Angeles	San Francisco				
Rathbone, Sard & Co., Aurora, Illinois	"Acorn"	E-61-5 E-61-HE 2550	E E E	20 x44 20 x44 20 x44	55 55 55	18x14x16 18x14x16 18x14x16	18x14 18x14 18x14	Large	2000 2000 2000	1200 1200 1200	4400 4400 4400	3000 3000 3000	1500 1500 1500	8000 8000 8000	E E E	..... ..... .....	M. S. Barnet, 180 New Montgomery St., San Francisco F. D. Barnet, Portland and Salt Lake City	Portland, Ore.		
Rutenber Elec. Co., Inc., Marion, Ind.	"Marion"	D- 90 126 135 130 145 150 147 110 105	O O O O O O O O O	22 x36 18 x24 22 x30 27 x31 27 x32 27 x33 27 x33 20 x26 24 x26	34 35 35 62 73 67 38 38	12x12x12 18x14x14 18x14x14 18x14x14 18x14x14 18x14x14 18x14x14 18x14x14 18x14x14	7x7 9x11 9x11 9x11 9x11 9x11 9x11 9x11 9x11	Large	1400 1400 1400 1400 1400 1400 1400 1400 1400	1200 1200 1200 1200 1200 1200 1200 1200 1200	600 600 600 600 600 600 600 600 600	1320 2350 2350 2500 2500 2500 2500 2500 2500	3380 5640 6180 6800 7500 9800 12600 12600 12600	A L L L L L L L L	\$ 75.00 98.50 160.00 170.00 180.00 207.00 227.00 140.00 155.00	Atlantic-Pacific Sales Co., 646 Mission St., San Francisco	Through Leading Jobbers	San Francisco			

ELECTRIC RANGE DIRECTORY
(CONTINUED)

NAME OF MANUFACTURER	TRADE NAME	Model or Catalog No.	Type of Unit O—Open C—Enclosed	Floor Area	Height from Floor	Oven Dimensions	DIMENSIONS				HEATING UNITS						WESTERN SALES REPRESENTATIVE	WESTERN DISTRIBUTORS	Nearest Point at Which Repair Parts May be Secured					
							SURFACE		OVEN		SURFACE			WATTAGE						TO L	OVEN	Cabinet—Low	Temperature Control	C—Elevated
							Large	Medium	Medium	Small	Simmer	Oven	Broiler	Total Watts	Surface Units	Medium									Medium	Small	Oven	Broiler	Maximum Wattage
Simplex Elec. Heating Co., 85 Sidney St., Cambridge 39, Mass.	"Simplex"	25	C	30 x22	32	18x17x11	8				15x16	10x18	1200		3600	1200	2000	6800	\$150.00	Universal Elec. Co., San Francisco Holbrook, Merrill & Stetson, San Francisco Reiman White, Elec. Co., Los Angeles Marshall Wells Co., Portland	Distributors			
		26	a	34 x15	26	13x13x13	a				15x16	10x18	1200		2400	600	1200	4200	75.00					
		27	a	31 x22	24	18x17x11	a							1200		3600	1200	2000	4900			175.00		
		29	a	57 x22	a		a									4800	1900	5700	220.00					
Standard Electric Stove Co., Toledo, Ohio	"Standard"	D-619	C on	24 x58	61	11x14x19														Commercial Associates, Los Angeles, San Francisco				
		619	O	24 x57	a																			
		621	a	24 x26	a																			
		501	a	26 x47	a																			
		755	a	24 x40	a																			
		639	a	24 x38	53																			
		555	a	24 x30	61																			
		455	a	24 x34	53																			
		423	a	24 x33	61																			
		521	a	22 x30	49																			
		519	a	20 x29	61																			
		421	a	18 x26	49	11x14x16																		
		851	a	27 x40	61	11x14x19																		
		850	a	27 x46	53																			
		365	a	22 x33	22	11x12x14																		
A-4	a	None		11x14x11																				
A-5	a			11x14x11																				
951	a	24 x22	52	14x16x18																				
H. G. Weeks Mfg. Co., The Hamilton, Ohio	"Weeks"	52	O	23 x16	35	16x10x9	7		9x12	9x12	1100	1100	3600		880	1100	1100	3600	\$ 71.75	T. G. Arrowsmith Co., 135 New Montgomery St., San Francisco	Central Stations and Dealers	San Francisco		
		44	a	24 x17	38	18x14x12	9																105.00	
		46	a		a		a																93.00	
		236	a		a	16x14x11	a																75.00	
		S-64	a	26 x20	a		7																	159.00
		C-114	a	44 x24	83	18x18x12	a		14x14	14x14	1500	1500	6000		3000	1500	1500	6000					186.00	
		105	a	39 x24	88	18x18x12	a																217.00	
		C-394	a	47 x22	83	18x18x15	a																210.00	
		454	a				a																222.00	
		Walker & Pratt Mfg. Co., Boston, Mass.	"Crawford"	18-70	O	26 x40 1/2	32	18x17x13	10		7 1/2 x12	7 1/2 x12	2000	1500	2000		1000	5000	7000				\$195.00	B. V. Gibson, 680 Folsom St., San Francisco	Western Elec. Co., San Francisco, Los Angeles, Oakland, Portland, Seattle, Tacoma, Spokane, Denver, and Salt Lake City	Distributors
18-70	C			26 x38 1/2	a		7 1/2												219.00					
18-60	O			26 x28 1/2	a		7													170.00				
18-60	C			16 1/2 x38 1/2	a		7 1/2													194.00				
18-50	O			16 1/2 x28 1/2	a		7													135.00				
18-50	C			16 1/2 x28 1/2	a		7 1/2													147.00				
16-80	O			23 x41	32	16x17x14	8 1/2													122.00				
16-80	C				8 1/2													140.00						
Westinghouse Elec. & Mfg. Co., San Francisco, Cal.	"Westinghouse"	B-3-19	O	43 x25	59	18x13x16	10		14x8	14x8	1500	1000	1500		4000	1500	1500	\$220.00	Westinghouse Elec. & Mfg. Co., San Francisco, Seattle and Portland Los Angeles and Portland	Fobes Supply Co., San Francisco, Oakland Seattle and Portland Illinois Elec. Co., Los Angeles	Distributors			
		B-2-19	a	32 x41 1/2	34		10															150.00		
		515	a	24 1/2 x16 1/2	31	12x16x12																	60.00	

JOBBER, DEALER AND SALES AGENT



Covering the Field with Correlated Advertising Washington Water Power Company Uses Newspaper Advertisements and Broadside to Increase Electric Iron Sales

To the electrical dealer who believes that "Every person that walks the earth is a prospect for my goods," correlated advertising is of exceptional value. Newspaper advertising is undoubtedly a great stimulator of sales and the printed broadside, sent by the direct-by-mail route, has also been found to be a strong means of increasing sales by breaking down sales resistance. The value of each of these forms of advertising has been proved by every merchant who used them and the returns to be derived from them, when used together, have been found to be even more satisfactory.

An example of how thoroughly successful is this method of covering the field was recently presented by the Washington Water Power Company of Spokane, Wash. The company, which conducts a retail electrical establishment under the name of the Electric Shop, desired to place about three hundred more electric irons on its lines. Plans for the campaign were drawn up and an offer was made which included the proposition that the purchaser could secure the iron, which was sold along with a patented ironing board, for a down payment of \$1. The purchaser was to be given the opportunity to use the iron for ten days and if she found that it was not entirely satisfactory, she could return it and secure a refund of the money that she had paid in on the purchase. The balance of the purchase price was to be paid at the rate of \$1 per month.

The Sunbeam electric iron was featured in the campaign and the company in addition to passing on the manufacturer's guarantee, also placed a guarantee upon the appliance. This added considerably to the attractiveness of the offer that was made.

In announcing the sale, the company used both newspaper advertising and broadsides which were sent to its residential consumers. The newspaper advertisements were run intermittently in the Spokane newspapers and in those of the towns of the Inland Empire which are directly served by the Washington Water Power Company. These advertisements though not entirely devoted to the announcement of the special sale, were the means of attracting considerable attention to the company's offer.

The company in getting the direct-by-mail contact sent broadsides, which dealt exclusively with the article which was being pushed at the time, to each of its 32,000 residential consumers. All

of the literature was not sent out at once, but instead, only one or two thousand of the folders were mailed each day. In this way the sales were spread out over the entire month of August, the time devoted to the sale of the irons. The broadside explained the offer that was made by the power company, laying stress upon the fact that the purchaser could secure the appliance upon ten days' trial for an initial payment of \$1 and that the monthly payments were only \$1.

The response to the correlated advertising was immediate. The broadside carried a return post card which directed the company to deliver one of the ranges and ironing boards to the customer. These cards were returned

to the office of the Electric Shop at the rate of about eight or ten a day. Records which were compiled after the campaign showed that the greatest number of sales which were completed in Spokane were made in this way.

During the month of the campaign, 550 electric irons were sold by the Washington Water Power Company. Of the total number, 347 were sold among the 24,700 residential consumers of Spokane and 203 were sold in the outlying towns where there are 7,500 residential customers. The sales in the towns surrounding Spokane were made by the district representatives of the power company.

F. W. Redfield and P. E. Braun have organized the Santa-Hi Electric Company and have opened a store at 6781 Santa Monica Boulevard, Hollywood, Calif. They will conduct a general contracting and supply business.

Washington Water Power Co.

A Wonderful
Opportunity
for Women

Dear Madam:-

Here's good news indeed.

It will surprise you to know that only one home in 30 has a suitable ironing table. And not more than one in 10 has an electric iron with all the latest improvements in ease and quickness in ironing.

We have arranged to sell
of Sunbeam Electric Irons
with all the latest improvements

**Only a Limited
Number of Sets**

**Will YOU
Get One?**

Mail This Card Today!

articles will lighten your work and
crudgery out of laundry day. Read all about our
offer on the other side of this sheet and return the card
right away so we can reserve one for you.

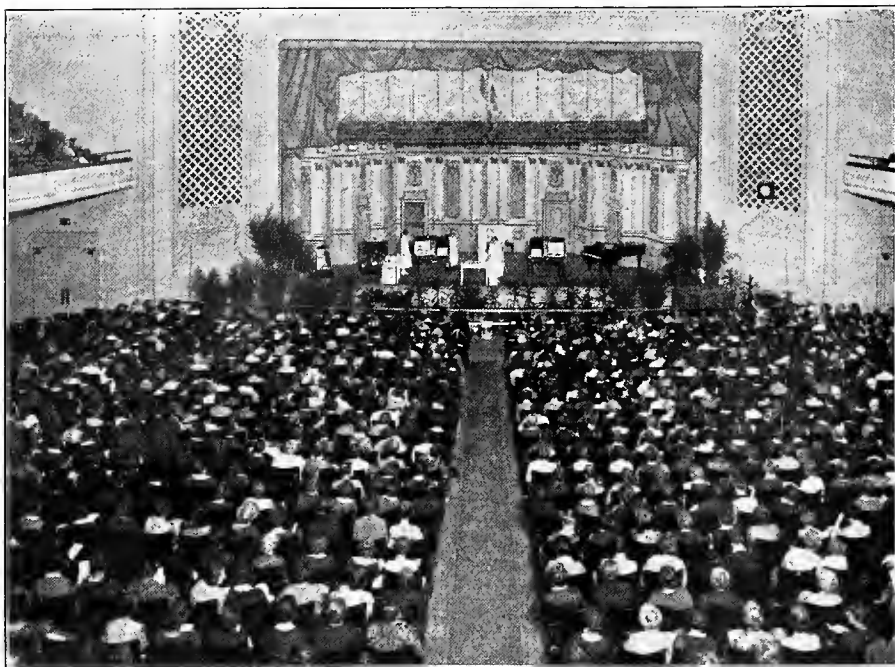
Private Mailing Card

Washington Water Power Co.

City

Washington Water Power Co.

The letter, reproduced above, was sent to all of the residential customers of the central station company to notify them of the special offer. The insert shows the back side of the postcard.



A great deal of interest was evidenced by the women of Portland in the cooking school that was held in the municipal auditorium there. The group shown in the illustration was an average one.

Interest in Electric Ranges Increased by School

Seven Thousand Portland Women Hear of Advantages of Cooking by Electricity at Recent Cooking School

A tremendous stimulus has been given to electric cooking and the sale of electric ranges by the electric cooking school recently held in Portland, Ore., by the Edison Electric Appliance Company, Inc., in conjunction with the Morning Oregonian. Beginning Sept. 10 and continuing for five days, public demonstrations were made between the hours of 2 and 4 p.m. by Miss Bernice Lowen, a skilled demonstrator and home economist, who was specially secured, for this work, from the Chicago office of the Edison Electric Appliance Company, Inc.

Remembering the experience of last December at which time the first Oregonian electric cooking school was tried in Portland, when the crowds of housewives were greater than the building would hold, the public auditorium was secured. During the five meetings no less than 7,000 women attended and received direct from a trained demonstrator that instruction in the wonders of electric cooking which is sure to result in a wider use of the electric range.

In general the school was conducted much along the same lines as the one a year ago. Although known as the Oregonian Cooking School, the man behind the gun was R. W. Turnbull of the Edison Electric Appliance Company, Inc. He had small difficulty in enlisting the cooperation of the Oregonian, a paper that is making a special effort to be useful to the housewife, and which had already conducted one successful campaign. However, even as a business venture the newspaper is well satisfied with the returns.

Local merchants were liberal in purchasing advertising space and offering prizes in the baking contests. As cooking requires the use of foodstuffs of every description, the number of merchants who can be solicited is large

indeed. Each day of the school a two-page spread appeared in the Oregonian, giving the interesting details of the coming lecture, special recipes applied to the electric range, lists of prizes, etc. These displays also carried the space assigned to the dealers. Both central stations, realizing the benefits to be derived from an increase in their range business, cooperated to the fullest extent, and advertised liberally.

The climax of the school came the last day when 783 entries were made in the baking contests. These baking contests were divided into three classes, bread baking, pie baking and cake baking, and each class had its own set of prizes. All prizes were donated by the merchants. An idea of the value and variety may be gained from the list of prizes which is reproduced below.

PRIZE LIST

Bread Division

- Capital prize—Hotpoint Hughes Super-Automatic Range, value \$235.
- Second prize—One No. 6 Hotpoint iron, donated by the Stubbs Electric Co.
- Third prize—Three 49-pound sacks Fisher's Blend flour.
- Fourth prize—16 cans Calumet baking powder.
- Fifth prize—12 cans Gold Bar products, furnished by Hudson, Gram & Co.
- Sixth prize—16 cans Carnation milk.
- Seventh prize—12 bottles assorted M. & R. flavoring extracts.
- Eighth prize—Six bottles Knight's catsup.
- Ninth prize—One package assorted products from the Porter-Scarpelli Macaroni Co.
- Tenth prize—One three-pound can of Monte Cristo coffee from Martin Marks Coffee Co.

Cake Division

- Capital prize—One No. 32 Thor electric washing machine, value \$185.
- Second prize—Hotpoint radiant grill, furnished by Portland Railway, Light & Power Co.
- Third prize—One Hotpoint rectangular grill, from Jones Electric Co.
- Fourth prize—Three 49-pound sacks Fisher's Blend flour.
- Fifth prize—16 cans Calumet baking powder.
- Sixth prize—One quart milk for one month by Portland-Damascus Milk Co.

Seventh prize—One dozen bottles assorted M. & R. flavoring extracts.

Eighth prize—16 cans Carnation milk.

Ninth prize—Six cans Gold Bar products, furnished by Hudson Gram & Co.

Tenth prize—Six bottles Knight's pickles.

Eleventh prize—One package assorted products from the Porter-Scarpelli Macaroni Co.

Twelfth prize—One three-pound can of Monte Cristo coffee from Martin Marks Coffee Co.

Pie Division

Capital prize—One Royal vacuum cleaner, value \$60.

Second prize—One antique bronze Hotpoint ornamental "Hedlite" heater, furnished by Northwestern Electric Co.

Third prize—One Hotpoint 4-inch single-heat stove, furnished by E. L. Knight & Co.

Fourth prize—Three 49-pound sacks Fisher's blend flour.

Fifth prize—16 cans Calumet baking powder.

Sixth prize—One quart milk for one month by Portland-Damascus Milk Co.

Seventh prize—One dozen bottles assorted M. & R. flavoring extracts.

Eighth prize—16 cans Carnation milk.

Ninth prize—Six cans Gold Bar products, furnished by Hudson, Gram & Co.

Tenth prize—Six bottles Knight's vinegar.

Eleventh prize—One package assorted products from the Porter-Scarpelli Macaroni Co.

Twelfth prize—One three-pound can of Monte Cristo coffee from Martin Marks Coffee Co.

The rules of the contest were simple and strictly enforced. Competent judges were selected who judged impartially, using the scale adopted by the Master Bakers' Association. The rules used by the Oregonian Cooking School were as follows:

Entries can be made in either division, in any two divisions, or in all three divisions.

Entries must be delivered at the auditorium basement between 10 and 12 o'clock Friday morning, Sept. 14.

Entries cannot be returned to the entrant after being judged. After the judging all entries will be delivered to the Portland Women's Club and sold by it.

Each person making an entry in the contest will receive a numbered check. A duplicate of this check will be placed on the entry, and in no case will the judges know whose product they are judging.

Judging will be conducted according to the rules of the Master Bakers' Association.

The judges will be expert bakers, millers or other thoroughly competent persons.

The products which are advertised in connection with the cooking school must be used in baking the entries for the baking contest.

Needless to say both central stations and many of the dealers took advantage of the situation to push electric ranges. Special window displays were made and undoubtedly a considerable number of sales were directly traceable to the recent demonstrations in electric cooking.

The Portland Railway Light & Power Company has been very active in that department of sales during the whole summer and expects to add 1,500 ranges to its load during 1923. The Oregonian Cooking School added impetus to these sales and a new six weeks' drive on Hot Point-Hughes ranges has been started. During the week of Sept. 17-21 Miss Lowen conducted classes in the second floor auditorium of the Electric Building and a very thorough advertising campaign helped to put over the range idea. It is expected that several hundred ranges will be sold during the six weeks.

Following the cooking school in Portland the Edison Electric Appliance Company, Inc., arranged for similar schools in Spokane, Tacoma and Seattle. In each city the cooperation of a leading newspaper was enlisted to sponsor the demonstration classes, which will be followed by an aggressive sales campaign by the central station and dealers.

Will You Electrify the Thanksgiving Dinner Table?

Capitalize on the Woman's Desire to Have Her Home Attractive at the Time of this Annual Home-Coming Occasion

Tradition has pronounced that Christmas is a time of giving and it is for that reason, primarily, that many persons wait until then to present gifts to their friends. Merchants have endeavored to intensify their trade during the season prior to Christmas, by advertising the coming of that day. The general public is prepared to purchase articles which are suitable for gifts and the enterprising dealer has been the one to profit.

There are other occasions throughout the year when the housewife thinks not entirely of her friends, but more of her own home. Thanksgiving dinner is an occasion to which she will devote particular attention as she will also to New Year's dinner. Easter Sunday she will consider chiefly how she will clothe herself and her family that they may make a suitable appearance.

When the housewife begins to think of her own home, the electrical dealer finds a prospect for his stock in trade, for he has something to supply which will increase the beauty and utility of her home. To present this message to the women, it is necessary for the electrical contractor-dealer to advertise the fact that he has something which will add to the cheerfulness of the home, for it is the housewife's aim to make her home more cheerful and attractive.

Thanksgiving time offers the electrical industry an exceptional opportunity to secure new business. Long evenings necessitate the use of artificial illumination at an hour which is not customary in the summer time and to make the home cheerful, it must be illuminated in a modern manner. Constructive effort on the part of the dealer is necessary, however, to pave the way for these installations, as in many cases the housewife will not decide by herself that better illumination would make her home more attractive.

Newspaper advertising will to a large extent aid the dealer in securing a profitable business in furnishing new lighting equipment for many homes. By intimating that Thanksgiving is a time when the home should look its best, the dealer will bring his prospective customers into agreement with him at the start. If he can show clearly that modern illumination will enhance the beauty of any home his advertising copy will have stood him in good stead and he will be in a strong position to make a sale to the readers of the advertisement. This of course holds for the electrical contractor, for in many cases it will be necessary to do some rewiring in order to bring the installation up to standard.

To increase the demand for illuminating fixtures in the city in which it operated, a contractor-dealer firm published the following advertisement:

At the Thanksgiving dinner—when the whole family is assembled—will be an appropriate time to display the new lighting fixtures that you have had installed. Your home is the center of your family and it is the duty and privilege of the head of the house to make that home as attractive as possible.

Proper lighting will make YOUR home more attractive and cozy.

The art of decorating the home with Light is being fully demonstrated in all of the electric homes.

The home maker whose aim is to make the home comfortable for every occasion and in every detail has found that the day of the center light only, has passed. Side lights and candle lamps which will supplement the center lighting fixture, will make YOUR home a place where your family and your friends will enjoy spending an evening. The new glass candle shades have been designed for correct lighting and are beautifully decorated in the soft, blending tones with floral conventional and period designs in harmonizing colors.

One of our trained illumination experts will be glad to call on you and advise you, as to what fixtures would be appropriate for YOUR home. Let him call now in order that you may have a home that is lighted correctly for the Thanksgiving dinner.

Lighting fixtures are not the only things that the electrical dealer can feature prior to Thanksgiving. According to an advertisement run by one concern, "The approach of Thanksgiving suggests new table appointments, such as coffee services, waffle irons, toasters, grills, and percolators. Electric appliances will simplify the serving of your Thanksgiving dinner." The same concern said in another of its advertisements,—"GLEAMING ELECTRIC

WARE FOR THANKSGIVING— to possess a silver coffee service is indeed fortunate. To own a service with an electric percolator, permitting the hostess to direct the coffee-making personally, inspires pride as well as pleasure."

Tieing-in with phonograph dealers, one electric store ran this advertisement.

Whether it's just your own little household spending a quiet day together, or a greater reunion of all the family, Music just seems to fit right into the spirit of Thanksgiving!

There's the feast of course, but that only lasts an hour or two. And all through the long afternoon and evening, it's great to have an electric phonograph on the entertainment committee. All the old-time melodies that stir the heart—all the peppy new tunes that make you dance! Everything in music is yours with the Electric Phonograph. Christmas is coming too. More celebrations and entertainment. Get your — now— before Thanksgiving— and enjoy it all through the Winter Holiday season.

The merchant who will make the most of the seasonal opportunities can find a large number of suitable advertisements which will adapt themselves to the sale of electric appliances. The creation of advertising copy which will tie-in with the seasonal demand will no doubt be an aid in the increasing of sales.

Department Store Presents Electrical Exposition

All Modern Electrical Household Appliances Shown in Operation and Lecturers Explain Advantages to Visitors

The department store has entered the electrical appliance field in earnest. Its earlier advent into this branch of merchandising was unquestionably delayed by the fact that the normal discounts on electrical devices did not show a profit equal to the cost of doing business. The discount situation on reliable merchandise has changed but slightly, if at all, but department store managers are awake to the fact that they can no longer afford to remain out of a field so fertile in its development possibilities. The growth of the appliance business has been so rapid and so spectacular that it has commanded the attention and thought of every merchandiser who views his business with a vision of the future.

Many such stores throughout the country have put in electrical departments where they carry small supplies, such as sockets, plugs, tape, etc. They also sell portable and stand lamps, and the more popular lamp socket devices such as flat irons, toasters, etc. The development of the electric range and water heater, together with electric air heaters of large capacity, has not, however, received great attention until very recently.

One of the department stores which has made a notable step in the direction of general electrical development is The Emporium, of San Francisco, Calif., which has a large department devoted to all the domestic electrical devices and has adopted novel means for the promotion of the electric applications idea. On Sept. 12, announcement was made in the columns of the press of a display and demonstration to be held in the store auditorium. The actual operation of equipment was announced, as were motion pictures and a course of lectures.

Around the sides of the auditorium booths were constructed for the display of the various appliances. Trained

demonstrators were on hand at each booth for the necessary explanation regarding the devices and, so far as possible, the appliance was in each case actually operating. For example, at a booth displaying waffle irons, waffles were made and served with syrup; coffee was made in an electric percolator in another booth and was served with light cakes; an electric dish washer was shown in operation and vacuum cleaners were in actual use. In addition to the various lamp socket devices an electric range was connected up and a trained factory demonstrator baked cakes, bread and cookies and also roasted meats and cooked vegetables, all of which were sampled by the visitors. This method of approach to the consumer was highly successful and, particularly in the case of the lamp socket devices, resulted in a very satisfactory increase of sales. In addition to this, many prospects were developed for the sale of ranges, water heaters and air heaters and the sales possibilities of the electric appliance business together with the advantages of this type of display were made very clear to the management.

In addition to the newspaper advertising employed, the windows of the store were devoted to a display of electrical appliances and devices. These windows never failed to draw a crowd and were so effective in their attention-getting value that they were allowed to remain in for a period longer than the usual trim. The photographs on the following two pages show the window display. It should be borne in mind that these photographs are really of one long window and that to be accurately viewed they must be placed end to end.

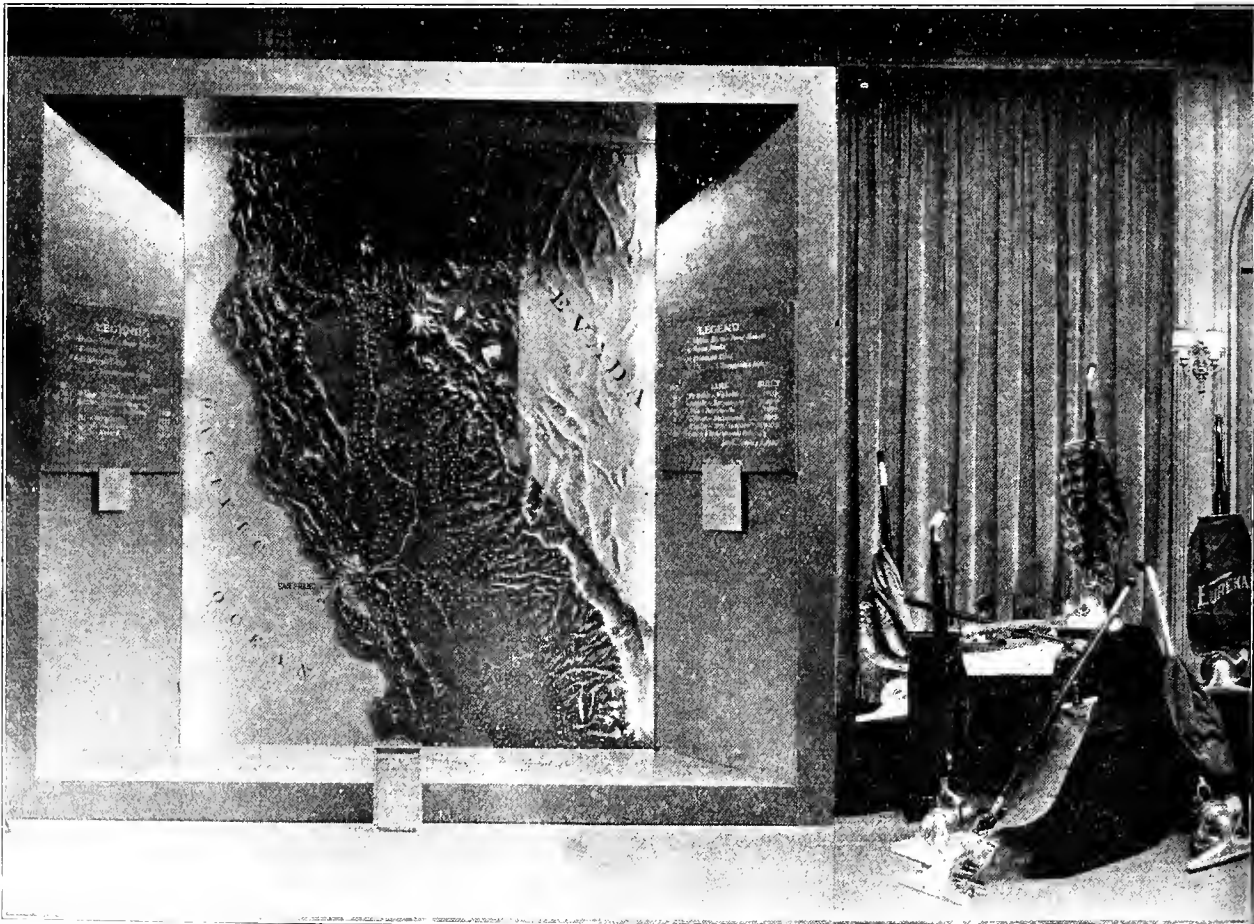
The entire display was made possible by the cooperation of The Emporium, the Great Western Power Company, and the Pacific Gas and Electric Company.

Presenting a Modern Display of Electric



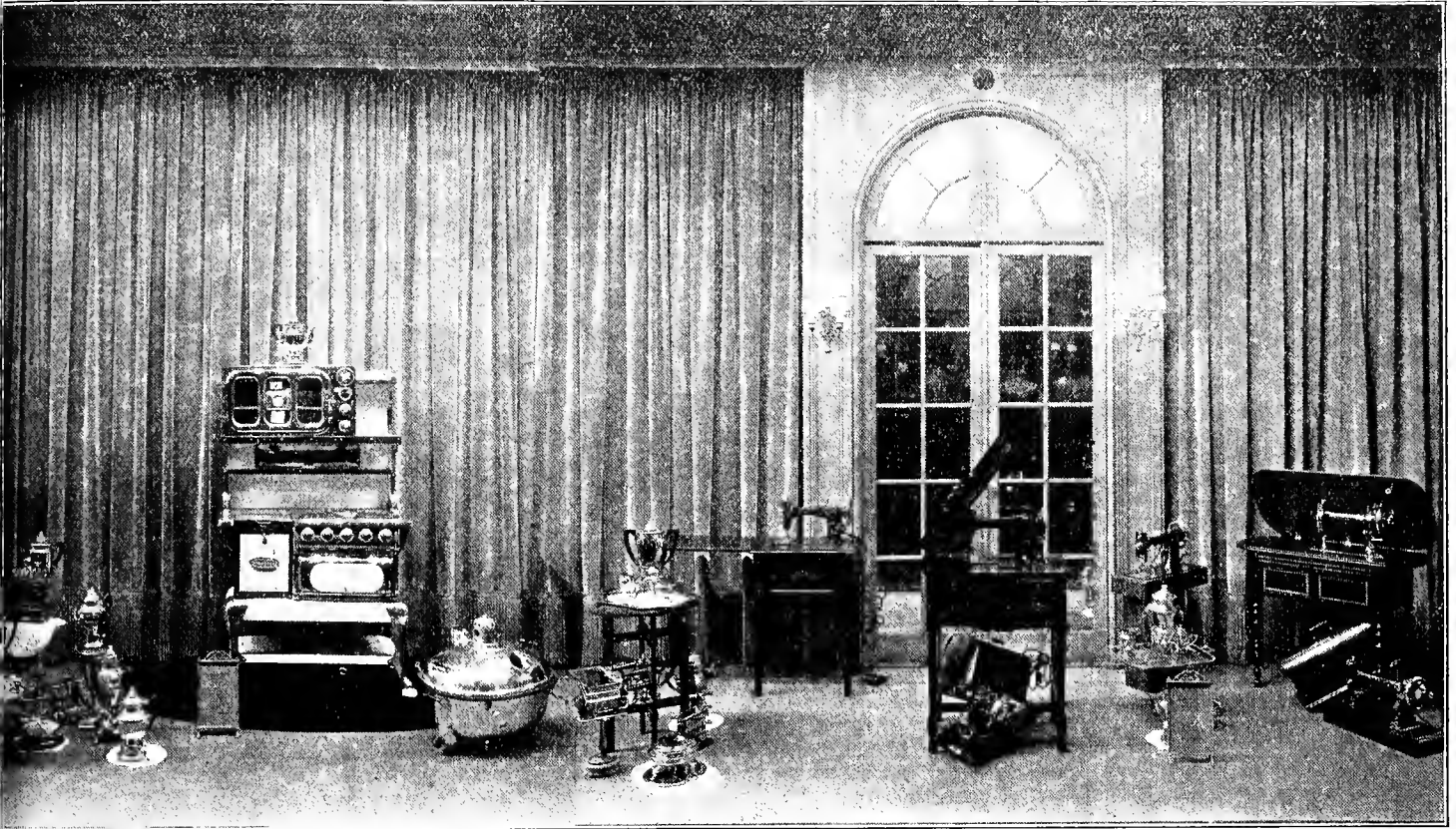
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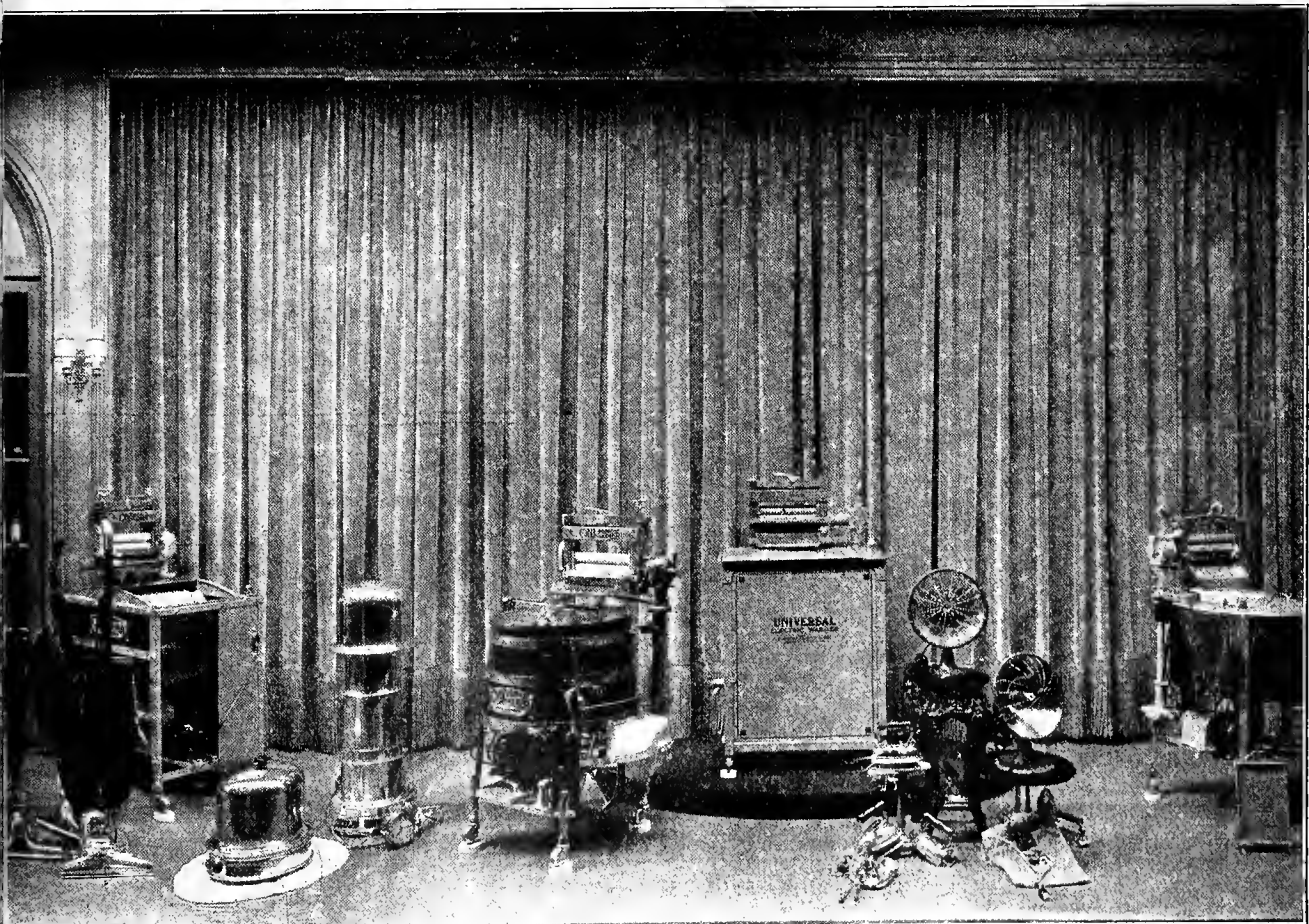


The second half of the row of display windows is shown here. All the

Products in the Department Store Window



to gain an idea of the display that was presented it should be regarded as one continuous panorama.



able window space at The Emporium was devoted to the electrical appliances.

INDUSTRIAL NEWS



Moffat Tunnel Driving Contract Signed by Commission

The contract for the boring of the Moffat Tunnel, the bore through the Rocky Mountains that will unite the two halves of the State of Colorado, has been let to Hitchcock & Tinkler, San Francisco and New York tunnel contractors. Under the contract, which is drawn on the profit-sharing plan, the cost of the work is placed at \$5,250,000. A flat sum of \$140,000 is to be paid to the contractors.

The contract states that the work must be completed in forty-six months and that for every day that the opening is delayed beyond this time, the contractors must pay \$1,000. If the work is completed before that time, a bonus of \$1,000 a day will be paid. If the tunnel is constructed for less than the price fixed, the balance will be divided equally between the Moffat Tunnel Commission and the contractors. If the cost of the tunnel is greater than \$5,250,000, the balance will be borne by the Commission.

R. H. Keays, recently appointed chief engineer of the project, will have general supervision of the work, the actual construction only being left to the contractors.

The Moffat Tunnel itself will be approximately 6 miles long and will be at an elevation of about 9,000 ft. The tunnel when completed will lessen the distance between Salt Lake City, Utah, and Denver, Colo., by 55 miles over the Union Pacific System and by 172 miles by way of the Denver & Rio Grande lines. The railroads will pay a rental to the Moffat Tunnel Commission for the privilege of using the right-of-way thus formed.

The Colorado Power Company has been awarded a contract for supplying electric power for driving the tunnel. Lines will be erected to both portals in order that work may be done at both ends simultaneously.

Portland Steam Plant Addition Is Placed in Service

The new \$500,000 addition to the Portland, Ore., steam plant of the Northwestern Electric Company, construction of which was begun last spring, has been completed and the turbo-generator with a capacity of 12,000 kw. has just been put in service. Including the cost of the new addition, the company now has an investment in land, buildings and machinery at the foot of Lincoln Street totaling \$2,500,000, and the general capacity has been increased to 22,500 kw.

Steam from the new turbo-generator is condensed on a surface condenser having 15,000 sq. ft. of tube surface.

Water for the condenser is supplied by a motor driven pump having a capacity of 20,000 gal. per minute.

According to L. T. Merwin, general manager of the company, for the present the company finds it economical to take care of the needs of the community by using the waste from the Oregon lumber mills to produce electricity, by burning "hog fuel." In his opinion it is only a matter of a short time until the company will have to build new hydroelectric plants on some of its water power sites in the mountains in the vicinity of Portland.

Lighting Rates Will Be Reduced in Western Washington

Following its announced policy of reducing rates as fast as facilities and volume of business will permit, the Puget Sound Power & Light Company, operating in the Northwest from Seattle headquarters, has filed a new schedule of electric light rates for residences in a large territory in western Washington. The schedule becomes effective Nov. 1. The new lighting rates are the first changes made in this territory by the Puget Sound Power & Light Company since April, 1914, when the present rates became effective. Power rates, however, were lowered in 1922.

The new schedule affects all the territory served in Pierce, King and Snohomish Counties, outside the cities of Tacoma, Seattle and Everett. The companies affiliated with the parent corporation making the change in rates are: The Tacoma Railway & Power Company; Puget Sound Power & Light Company, Tacoma and Seattle divisions; Puget Sound Electric Railway Company, southern division, and the Puget Sound Power & Light Company, Everett division.

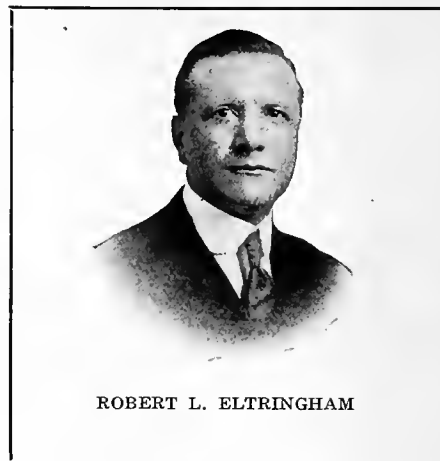
The schedule provides for a rate of eight cents a kilowatt-hour for the first 60 kw-hr. and three cents a kilowatt-hour for all in excess of 60 kw-hr. The old rates were: eight cents per kilowatt-hour for the first 60 kw-hr., six cents per kilowatt-hour for the second 60 kw-hr., and five cents per kilowatt-hour for all over 120 kw-hr. The rate of three cents a kilowatt-hour for electric cooking remains unchanged.

The annual Pacific Coast meeting of the American Society of Agricultural Engineers is to be held on the campus of the University of California at Berkeley, Calif., Oct. 19. Among the papers to be presented is one entitled, "The Application of Electricity to Agriculture in California." This paper will be presented by R. C. Griffin, power sales engineer of the Pacific Gas and Electric Company.

Robt. L. Eltringham Resigns from Cooperative Campaign

Robert L. Eltringham, executive manager of the California Electrical Cooperative Campaign for the past three years, has resigned from that position effective Nov. 1, 1923. Mr. Eltringham's resignation was presented at a meeting of the Advisory Committee of the Campaign held in Los Angeles Oct. 1 and was accepted by that body with regret. He will stay with the Campaign until Dec. 1, 1923.

Under his direction, the Cooperative Campaign has risen to a point where it is recognized as one of the foremost organizations of its kind in the coun-

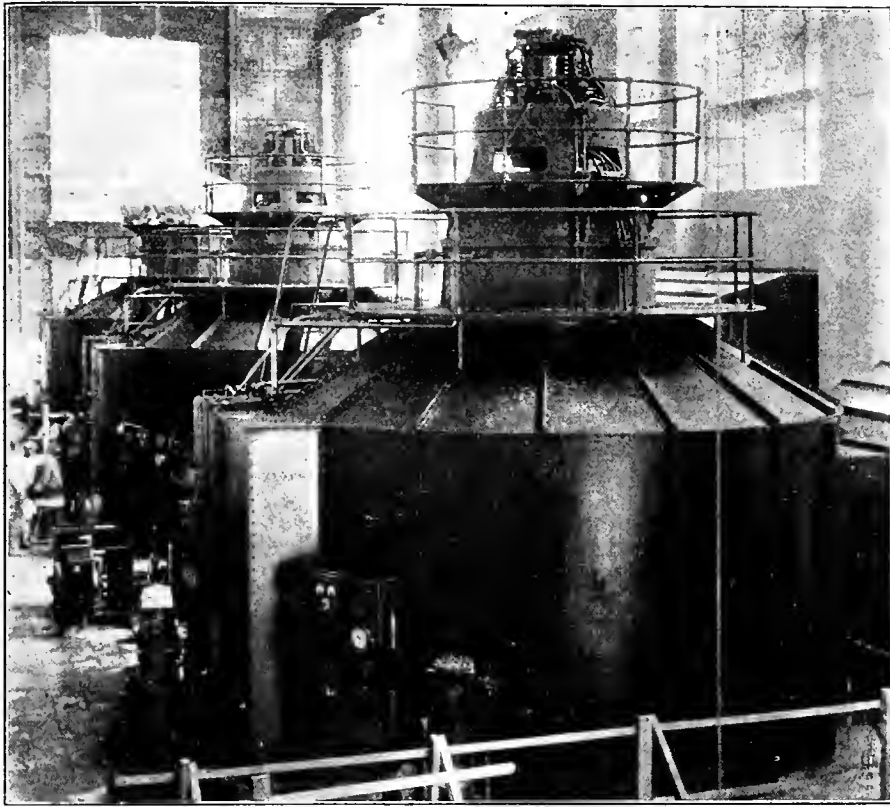


ROBERT L. ELTRINGHAM

try. The pioneer of such movements in the electrical industry, it has initiated practices which have been adopted almost universally. During Mr. Eltringham's administration an electric home program which has never been equaled has been carried through, the June Bride Week merchandising campaign was initiated and successfully carried out during two seasons, and the Better Merchandise Display lighting exhibit was perfected and placed on the road. His latest scheme for spreading the electrical message is through the conversion of two railroad cars into portable electric home and electricity on the farm exhibits, and is being studied at the present time.

Previous to joining the Campaign as executive manager, Mr. Eltringham was electrical engineer for the Industrial Accident Commission of California for a period of six years. Before that he had been industrial engineer for the Great Western Power Company. He is a member of the American Institute of Electrical Engineers.

Mr. Eltringham's plans for the future are indefinite at this time. He is planning to visit the East for a much needed vacation and rest.



Interior of the Southern California Edison Company's Big Creek No. 3 power house, the largest hydroelectric plant west of Keokuk, Iowa.

Big Creek No. 3 Is Put on Power Company's Lines

Largest Hydroelectric Power House West of Keokuk Is Serving Southern California Edison Company Customers

Big Creek No. 3, the largest hydroelectric generating plant west of Keokuk, Iowa, has been put on the lines of the Southern California Edison Company. The first unit was put in operation on Sept. 30 and the second came on Oct. 3. These two units carried a load of 52,000 kw. until Oct. 7, when the third unit was put in service. The total capacity of the three units is 75,000 kva.

Big Creek No. 3 is located on the main San Joaquin River and is the largest of the power houses that have been designed for the Southern California Edison Company. It is to have an ultimate capacity of 150,000 kva. This power plant is the fourth one of the stations that the Edison company has completed on the headwaters of the San Joaquin River. There will ultimately be 19 power houses in the immediate vicinity.

The plant which has just gone on the lines has an initial installation of three Wellman-Seaver-Morgan 35,000-hp., 423 r.p.m. vertical turbines operating under a head of 760 ft. These drive three Westinghouse Electric & Manufacturing Company 25,000-kva., 11,000-volt, 50-cycle generators. The plant uses the water after it comes from the tail race of Big Creek No. 8, a tunnel 4.7 miles long and 22 ft. square carrying 3,000 sec.-ft. of water to the new power house. The flow of water is controlled by a 22-ft. diameter circular sluice gate.

The penstocks leading to the turbines are made entirely of lap welded pipe, varying in diameter from 7½ ft. to 6 ft. The valves at the bottom of these lines

are of the needle type manufactured by the Wellman-Seaver-Morgan Company. Butterfly valves 7½ ft. in diameter are located at the upper end of the penstocks and are arranged for control from the power house. A surge tank, hewn out of solid rock and similar in shape to an hour-glass, is located at the penstock intake. Three vent pipes are located at the head of the penstock lines to preclude any damage to the pipe

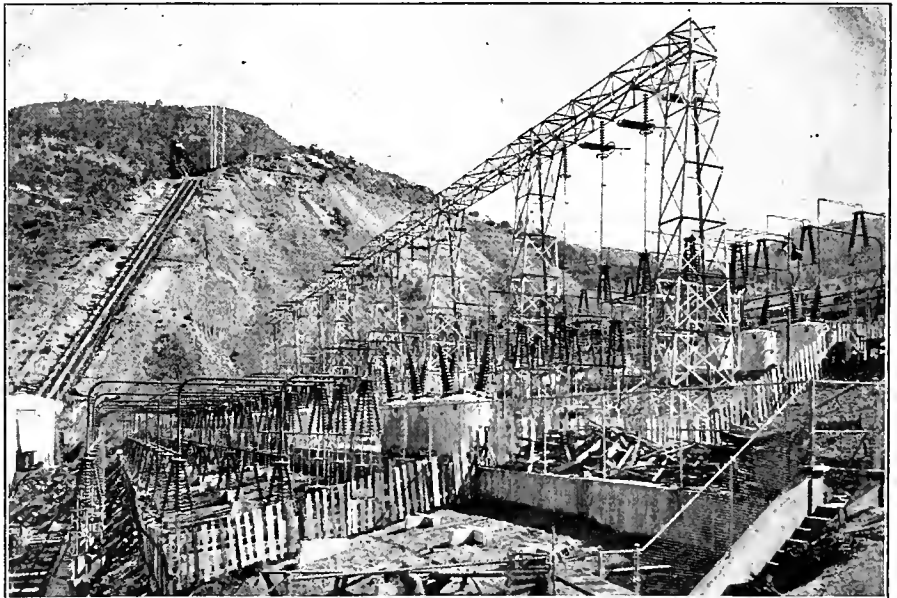
should the gates be closed at any time.

The switch garden at Big Creek No. 3 occupies a space 195 x 430 ft. and consists of a series of concrete benches placed on the slope of the mountain. There is a difference in elevation, between the upper and lower benches, of 46 ft. These benches support the oil switches, buses, etc. All power from all of the Big Creek plants now in operation, goes to this switch garden before being transmitted to the southern California markets.

Present plans of the company call for the ultimate installation of three more units in the power house and the raising of the capacity to 150,000 kva. Space for one additional unit in the power house has been provided so that when the company's load increases sufficiently the addition can be made at nominal cost. The other two units will be housed in another section of the structure which will be added when necessary.

The power that is generated at Big Creek No. 3, together with the other plants in the vicinity, is transmitted to distributing centers a few miles from Los Angeles at 220,000 volts. The transmission line is 240 miles long and is of double circuit type. This line leads to the Eagle Rock substation and also to the new Laguna Bell substation, in the industrial section of Los Angeles.

Bids for construction of the first unit of the proposed Lake Cushman power project, under development by the City of Tacoma, Wash., will be called in about 60 days, according to J. L. Stannard, chief engineer. Mr. Stannard recently completed an inspection trip of the property. The design of the big dam to go into the canyon of the Skomish River has been completed by the project engineers, and is awaiting now the approval of the patentee of the form of dam to be used, and that of the state hydraulic engineer. Estimates on generating machinery and other parts of the power installation are also being made, preparatory to naming the total amount which will be needed in the bond issue.



Switch garden located on the mountain side below Big Creek No. 3 on the San Joaquin River.

Discuss Arizona Plan of Developing Colorado River

Applicant for Diamond Creek Site and Arizona Committee Are Given Hearing by Federal Power Commission

On Sept. 24 the Federal Power Commission gave to a committee of nine members from the State of Arizona, headed by Governor W. P. G. Hunt, an opportunity to present the so-called Arizona plan for the development of the Colorado River within the boundaries of that state. Concurrently the Commission gave a hearing to James B. Girand upon his application for a license for a water-power project in the Colorado, to be located at Diamond Creek in Arizona, and to opponents to the granting of Mr. Girand's application.

State Senator H. A. Elliott, who acted as spokesman for the Arizona committee, the first to be heard, presented a brief setting forth of the desire of the state to develop for its own benefit, by a series of state-owned and operated power plants, what it considers to be one of its greatest resources, the power possibilities of the Colorado. Mr. Elliott stated that it was proposed to proceed first with the Diamond Creek development; this to be followed in a few years by the Glen Canyon reservoir; and then subsequent installations to be added along the river as the power market demands. He asserted the unequivocal opposition of the State of Arizona to the so-called Colorado River Compact, stated that the state would never agree to its terms, and decried any tendency on the part of the Federal government to use coercive measures to bring about ratification of the compact. Senator Elliott admitted, in response to a question by Secretary Weeks, that Arizona did not have a definite plan for carrying out its projects, or the necessary constitutional authority to undertake its financing, but stated that a special session of the legislature could be called and an election looking to effecting a change in the State constitution could be carried out in six months' time. Mr. Elliott stated that Arizona realized the urgency for beginning operations without delay, and therefore did not oppose granting Mr. Girand's license, because the state could take over the license and any works constructed thereunder through condemnation proceedings.

C. T. Knapp, attorney for Mr. Girand, pointed out that for ten years Mr. Girand had been endeavoring to carry out this development; that he had complied with all requirements of the various agencies of the government with which he had had to deal; and that he had held preliminary permits from the Department of the Interior and subsequently from the Federal Power Commission continuously from 1915 to the present time, thereby acquiring a vested legal right as well as a moral right to a license. Mr. Knapp stated that Mr. Girand was willing to accept a license containing conditions which would render it subject to the limitations of the Colorado River Compact; that Mr. Girand's water permit, issued by the State of Arizona, would become null and void if work on the project is not commenced before December 26, 1923; and that inasmuch as it is apparent that the state would never renew the water right, Mr. Girand would undoubtedly lose his priority together with the \$140,000 already

spent in engineering and legal activities in connection with the project.

Delph E. Carpenter, who acted as spokesman for the States of Colorado, Utah, and New Mexico, emphasized the importance to the future development of the Southwest of the ratification of the Colorado River Compact so as to avoid the evils of litigation, otherwise inevitable, and stated that he was particularly opposed to granting Mr. Girand's license because this would create a vested water right not subject to the provisions of the compact and because the approval of one project before a scheme for the development of the entire river had been worked out would necessarily preclude the satisfactory carrying out of a comprehensive project providing for utilization of the resources of the entire stream.

Congressman Phil D. Swing, of Imperial Valley, Calif., Col. B. F. Fly, of Yuma, Ariz., Chaplain Hartman of the southern California post of the American Legion, U. S. Senator Ralph B. Cameron, W. G. Clark, and George Maxwell each urged the Commission not to grant Mr. Girand's application because such action would interfere with the early carrying out of the Boulder Canyon project, or similar projects designed to relieve the danger from floods in the lower river and to provide water for irrigation in the lower basin.

No action was taken by the Commission at the conclusion of the hearing. The matters presented will be studied by the Commission's staff, and will probably receive consideration at the next meeting of the Commission, to be held on or about Oct. 15.

Development Work on Stave Lake Project Is Started

The British Columbia Electric Railway Company recently started work on its plant at Stave Lake on the properties acquired from the Western Canada Power Company. It is estimated that a total of 157,000 hp. may be added to the output of the company and it is the purpose to develop this power in three separate units as the market may require.

The first development will be a 25,000-hp. addition to the present Stave Falls plant and will be located in a separate structure which will be erected adjacent to the present plant and will be operated by the same crew that is operating the existing power house. Remote control apparatus will be used to a considerable extent.

The second plant will be erected on the upper end of Stave Lake and will be supplied with water from Alouette Lake by means of a dam on the lake and a 3,900-ft. tunnel. A drop of about 140 ft. will be utilized there to develop 12,000 hp. The third power house will have a capacity of 120,000 hp. and will be located about 3½ miles down the river from the site of the present plant.

The Sumner Iron Works of Everett, Wash., is installing an electric furnace costing \$10,000, with capacity of 25 tons of castings a day. The furnace was purchased from the Green Electric Furnace Company of Seattle.

San Francisco Utilities Do Not Wish to Sell Systems

Both the Pacific Gas and Electric Company and the Great Western Power Company have informed the Hetch Hetchy advisory committee of the San Francisco Board of Supervisors that they do not care to sell their distributing systems in San Francisco. The committee sent letters to both utility companies, requesting information concerning their stand regarding the sale of the distributing systems.

The Pacific Gas and Electric Company, through Wigginton E. Creed, the president of the company, stated that it was not in a position to offer the San Francisco distribution system for sale as the entire system was developed for serving a large section of the State of California, and that the service in any one portion of the state is directly related to the service in every other portion thereof.

J. B. Black, vice-president and general manager of the Great Western Power Company, stated that the sale of that company's distribution system in San Francisco would disrupt the plans for development as the San Francisco system was only a part of the company's properties and any severance would seriously hamper the plans for future development that had been made.

Students Will Get Information Concerning Utilities

Following the lead set by the universities in Colorado, New Mexico and Wyoming, students in high schools and upper grade classes in the three states will receive instruction covering the public utility industry. The Rocky Mountain Committee on Public Utility Information has been asked to cooperate with the school heads and will endeavor to supply speakers at every time that the educational institutions shall need them. Lecture and study courses will be incorporated in the plan.

A large number of schools have already made application to the Committee for assistance in the placing of information before the students and a series of papers designed especially for the class rooms is being prepared. These papers will be read before the students by executives of the public utility companies and will deal with all phases of the industry. The first paper, the title of which is "The Romance of the Kilowatt," will deal with electricity, its history and development.

The Public Utilities Commission of Utah has recently questioned the authority of the municipal plant of Hyrum, Utah, to arbitrarily raise its rates on electricity without consulting the Commission. The utilities board allowed the plant to raise its rates some time ago to 9 cents per kilowatt-hour for lighting rates and 4 cents per kilowatt-hour for power service. The municipal plant took it upon itself to raise the lighting rate to 10 cents per kilowatt-hour without the consent of the Commission.

The California Electrical Cooperative Campaign has recently moved its Los Angeles offices from the Baker-Detwiler Building to the Roberts Building at the southwest corner of 3rd and Main Streets. The office number is 631 and the new telephone number is Main 2496.

Plans Made for Development of Water Power in India

An application has recently been made to the Government of Madras for the sole right to develop electric energy from the Pykara River in the Nilgiri Hills of South India. It is proposed, according to advices to the Department of Commerce, to construct a dam 150 ft. high across the river forming a lake which will have a storage capacity of 6,000,000,000 cu. ft. with a catchment area of 38 sq. miles. The water from the lake will be conveyed by an aqueduct one mile in length, on the right bank of the river, to a forebay and from there through a pipe line to the power house situated at the bottom of the gorge.

The project is so outlined that the tail water, after use, will be allowed to flow into the Moyer River. As the Moyer River flows through a deep gorge, the establishing of another power house is contemplated at a suitable point to generate electricity by the further fall of the river from the deep gorge.

A total of 50,000 hp. is expected to be generated under the present scheme together with its future possibilities. The power obtained is to be utilized for electro-chemical industries and electrical reduction of ores.

According to the Semaphore of July 13, 1923, Constantine, the capital of Eastern Algeria, is to have installed, for the benefit also of its neighboring towns, two dams, for developing power and light. One dam at Kreneg is to be about 115 ft. high, which will provide a storage reservoir of 41,000,000 cu. ft. capacity. The cost of this plant is estimated at 13,200,000 francs. About 5,790 hp. will be available. The lower dam, called the Beni-Haroun, will be 130 ft. in height, with a canal 650 ft. long. The power available will be about 2,175 hp. and the cost of construction 7,000,000 francs.

General Fund to Stand Part of Street Lighting Costs

Making the statement that "Seattle can now advertise to the world that its municipal light plant is furnishing current for street lighting purposes at 1 cent per kilowatt-hour," the City Council of Seattle, Wash., has recently passed an ordinance fixing the rate at that figure. Previous to this time the city street department has been paying the light department at the rate of 4 cents per kilowatt-hour for this service.

The balance of the cost which was previously charged to the street department, will be taken from the city's general fund, a provision being made that maintenance costs of the street lighting apparatus be defrayed in this manner. The scheme of reducing the actual power rate and of tacking the balance on the general fund of the city was proposed by Mayor Brown.

Cooperative Campaign Outlines Christmas Plans

Plans for an elaborate Christmas merchandising campaign involving all branches of the electrical industry, especially the contractor-dealer and those branches actively engaged in retailing electrical appliances, are being perfected by the California Electrical Co-operative Campaign. At the last meet-

ing of the Advisory Committee, held in Los Angeles, Oct. 1, a maximum of \$3,000 was set aside for carrying out the campaign.

A committee consisting of C. C. Hillis, Electric Appliance Company, C. B. Chamblin, California Electrical Construction Company, and W. H. Woodward, Great Western Power Company, has been appointed to perfect plans for the campaign. Preliminary meetings have already been held in San Francisco and a definite announcement concerning the campaign will appear shortly.

A complete story covering all phases of the plan to give the electrical merchant his share of the Christmas trade will appear in the Nov. 15 issue of the Journal of Electricity.

Permit for Los Angeles Subway Subject of Application

An application for permission to construct and maintain a subway from Hill Street between Fourth and Fifth Streets in Los Angeles to Glendale Boulevard, has been made to the California Railroad Commission by the Pacific Electric Railway Company of Los Angeles. The company has already acquired all of the right-of-way for the construction of the subway, with the exception of two lots and condemnation proceedings have been set for trial on Nov. 16 on these pieces of property.

The City Council of Los Angeles has given the street railway company a franchise for the construction of the tunnel and the line of the railway. The purpose of the subway is to reduce traffic congestion in the center of Los Angeles. A number of trains serving the outlying sections of the city would use the subway and would in this way remove considerable traffic from the surface lines.

The Western Irrigation Equipment Association will hold its quarterly meeting in San Francisco on Oct. 17. C. A. Utey of the Pelton Water Wheel Company is president of the Association.

Second Unit Is to Be Added to Wired-Wireless System

A new sending and receiving station to be used in connection with the wired-wireless system of the Pacific Gas and Electric Company, will be installed at the Claremont substation of the company. The communication system is used by the dispatching department of the company in keeping in touch with operators at Pit No. 1 Power House, a distance of 260 miles from the Claremont station.

This station will be operated by remote control from the company's office in Oakland. The system is extremely valuable during stormy weather as communication can be maintained when telegraph and telephone wires would be down. The company has been using the present system between Pit No. 1 and the Vaca-Dixon Substation since the new power house was put on the line.

Western Spirit Is Carried East By Los Angeles Men

The bad man of the West has disappeared with the advance of civilization and culture but he has left an indelible trace on the records of the past. The cowboy who has for decades roamed the plains on his pinto or mustang, clad in picturesque chaps and sombrero, is giving way to modernism.

The history of the past, however, is frequently reviewed by those who would keep it fresh in the minds of newcomers and reference to its characters is always appealing. When the Illinois Electric Company held its Tenth Year Convention at Chicago several of the members of the Los Angeles branch went East to attend. To impress their eastern associates with the spirit of the West and to show the real live-wire spirit of the Los Angeles organization, all the members were arrayed in true cowboy style including even the famous bandana and the almost extinct sombrero.



Recalling the days of the James brothers and the passing of the old-time cowboy, the members of the Illinois Electric Company's Los Angeles sales force arrayed themselves in true pioneer style when they attended the Tenth Year Convention of the company at Chicago.

High Voltage Operation Discussed at Convention

Engineers of International Reputations Present Papers at Pacific Coast Meeting of A.I.E.E. at Del Monte

Delegates attending the annual Pacific Coast convention of the American Institute of Electrical Engineers at Del Monte, Calif., Oct. 2-5, 1923, have characterized the meeting as the most successful in the history of the organization. The registration was in excess of 250 and there was an average attendance at all sessions of 175.

The presence of many engineers of international reputation gave the convention a national aspect. Harris J. Ryan, president of the Institute and an authority on high voltage transmission, Dr. C. P. Steinmetz and J. L. R. Hayden, General Electric Company engineers, and Frank G. Baum were among the notable engineers who gave papers and addresses.

The papers were collectively good, dealing largely with questions of high voltage transmission, insulation, transformers and other apparatus. The discussion was lively and many interesting points were brought out. Long distance telephony and carrier current telephony were also discussed.

One of the important features of the convention was the address on "Some Factors in the Power Problems of the U. S. A." by Frank G. Baum, consulting engineer of San Francisco. Mr. Baum bemoaned the efforts which municipal ownerships propagandists are making to tear down the highly economical power generation, transmission and distribution systems which the private agencies have built up during the past three decades. He declared that such action would hinder the industrial and social development of the country if continued.

The feature of the annual banquet was the presentation of the Edison Medal to Dr. R. A. Millikan of the California Institute of Technology for especially meritorious achievement in the field of electricity. The presentation address was made by Dr. Frank B. Jewett, past president of the Institute, from New York City over long distance telephone. Dr. Jewett eulogized the work of Dr. Millikan and declared that the Edison Medal is the highest award which the electrical engineers of America can pay to anyone. He outlined the work of Dr. Millikan which brought about the award of the medal, placing particular stress on his efforts in the scientific education of the younger generation. Dr. Millikan responded in the chief address of the evening. He spoke at great length on the importance of scientific research to civilization.

In the annual golf tournament Paul M. Downing and S. J. Lisberger, both of the Pacific Gas and Electric Company, tied for the John B. Fiske cup. In the playoff, Mr. Lisberger won. W. G. Vincent, Jr., of the Pacific Gas and Electric Company, took third prize in the tournament. In the Kicker's Tournament, Mr. Downing took first honors.

Great interest was displayed in the post-convention trips, especially to the Big Creek plants of the Southern California Edison Company. A total of 52, all that could be handled, visited Big Creek. A trip around the substations adjacent to the San Francisco Bay region was enjoyed by a large number of delegates, while others visited the Pit River development of the Pacific Gas and Electric Company.

At the last session a memorial resolution to John A. Britton was passed. It was voted to hold the 1924 Pacific Coast convention at Pasadena with the Los Angeles Section as host.

Farley Osgood's nomination for the presidency of the Institute for the year 1924-25 was seconded in a petition which was informally circulated among the convention delegates. This action was taken in view of Mr. Osgood's withdrawal from the nomination last year, when Harris J. Ryan, western engineer, was a candidate for the position.

Eighty-five Per Cent of Work on Skagit Plant Completed

C. H. Uhden, chief engineer of the City of Seattle's Skagit project, recently announced that the power house at Newhalem was 85 per cent complete. Three units, each of 37,500 hp., will ultimately be placed in the power house, but only the first unit will be completed immediately. It is expected that the first unit will be ready for operation early in 1924.

Power will be transmitted 125 miles to Seattle over a transmission line which is being constructed by the city. The work of installing the second unit will be started as soon as power demands warrant.

The Puget Sound Power & Light Company's new power line between Tenino and Olympia, Wash., has been completed, and a connection established between the Puget Sound system of the company and the lines of the North Coast Power Company, recently purchased by the Puget Sound company.

Application for Huge Project in Arizona Is Filed

The Arizona Highline Reclamation Association recently filed with the Arizona state water commissioner an application for water and power sites for the irrigation of 3,500,000 acres of land in the state. An engineering committee also reported to Governor Hunt, of Arizona, that a high-line canal had been found feasible from a dam located below Spencer Canyon. This dam would be about one hundred and fifty feet in height. The plan provides for tunnels through several mountains and flumes across several rivers.

It is the proposal to construct a high-line canal 500 miles long and 155 miles of lateral canals leading to the center of distribution so that the 3,500,000 acres could be reached. Water would be diverted at an elevation of 2,000 ft. The estimated cost of the project is approximately two hundred and eighty million dollars.

The engineers' report states that there is available power in excess of one million horsepower, but that it is advisable to recommend the development of about seven hundred and fifty thousand horsepower as part of the initial construction.

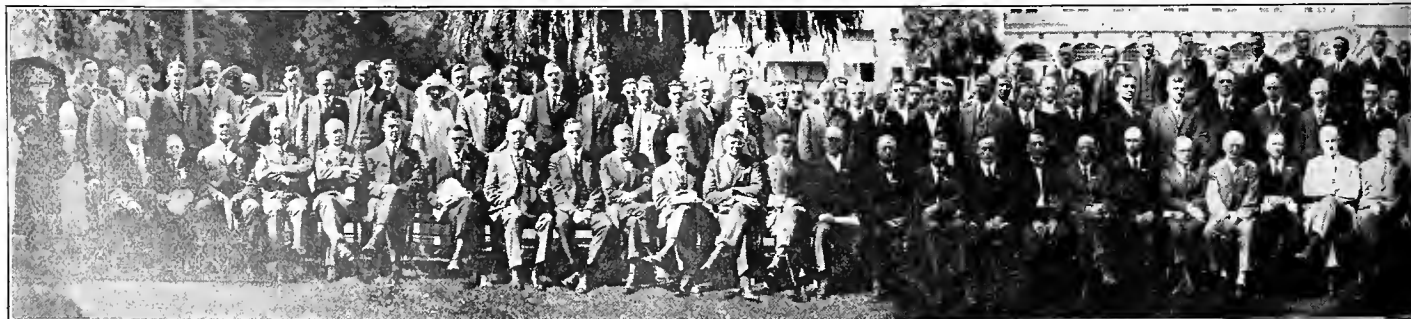
Radio Aids in Announcing Scioto Convention at San Diego

To give the greatest possible publicity to the annual convention of Sciots in San Diego in November, the electrical men of the order contrived to arrange for a nation-wide broadcasting of the news. Arrangements were made with the Los Angeles Times radio station for the handling of the entire day's program on Sept. 29. San Diego talent gave the five programs broadcasted throughout the day.

Arrangements were made by the Weathers Electric Motor Shop and electrical men of San Diego. Receiving sets were also set up in San Diego by some concerns for the benefit of local people.

"Give Something Electrical" will be this year's Christmas slogan in local and national newspaper advertising, replacing the slogans of past years—"Make This an Electrical Christmas" and "Say Merry Christmas Electrically."

Plans have been completed for the construction of another automatic substation by the Public Service Company of Colorado at 39th and Columbine Streets in Denver, Colo. A building permit for the superstructure has already been issued by the city.



Members of the American Institute of Electrical Engineers in attendance at the convention.

Giant Electric Hoist Is Built for Lumber Company

A gravity incline electric hoist, weighing 320,000 lb., costing \$60,000 and declared to be the largest hoist of its kind ever manufactured, has recently been completed for the Yosemite Lumber Company by the Llewellyn Iron Works of Los Angeles, Calif. The hoist will be used on a mountain at El Portal.

The hoist is of the double drum gear type and will lift a load of 130,000 lb. up an incline varying from 10 to 70 degrees. It has a rope pull of 80,000 lb. When used in lowering logs it will operate at a speed of 1,300 ft. per minute and in the hoisting of heavy machinery reduction gears are used to secure a speed of 250 ft. per minute. Two Westinghouse Electric & Manufacturing Company, 200-hp. slip ring motors are used to furnish power for the hoist.

Current to operate the hoist will be furnished by the San Joaquin Light & Power Corporation. By installing the hoist the company saves the construction of 18 miles of railroad, on parts of which it would be necessary to have a grade of 6 per cent.

Salt Lake City Merchants Enter Window Dressing Contest

To induce the merchants of Salt Lake City to appreciate the value of well-dressed display windows, a contest was held in that city from Oct. 4-5 to determine which merchant had the best decorated windows. Prizes amounting to one hundred dollars were awarded to the four merchants having the best window displays.

The judges based their decision upon the pulling power of the windows and upon the sales value that the displays had. The preliminary announcement stated that "matters of goods displayed, color arrangement, balance, background, unity of appeal, timeliness and evenness of illumination will play a part in the decision."

The window dressing contest was held under the auspices of the Inter-Mountain Retailer. The Rocky Mountain Electrical Cooperative League aided in promoting interest in the affair.

Coronado Is Installing Modern Street Lighting System

The City of Coronado, Calif., without ostentation or opposition, apparently, has instituted a campaign of street lighting through the use of ornamental light standards. Present plans call for the lighting with single light, 400-cp. lights placed on each side of Orange Avenue, the main business street of the beach city. Lights are also to be run from the business center to the ferry landing from San Diego.

A city of exclusive and expensive residences, many of the residence streets are asking for extensions of the system to residence districts. The city council of Coronado is proceeding under a plan whereby the lights are ordered in by the council without awaiting petitions from districts, protests being heard according to regular process of law.

The new street lighting system installation has been facilitated by the recent rebuilding of the entire electric lines in Coronado by the San Diego Consolidated Gas & Electric Company, which bought the United Light, Power & Fuel Company's system last year.

Application for Power Projects on Umpqua River Filed

Application for a preliminary permit has been filed by The California Oregon Power Company covering the proposed power development on the North Umpqua River. The projects considered embrace practically the entire river.

The first site is at Lemola Falls near Diamond Lake where the river plunges over a high cliff giving an excellent site for a large power plant. The second project is at Toketee or Ireland Falls. The third and fourth sites are adjoining and take in all the river from Steamboat Creek to Idlyld' Park. The company is to put its engineers to work at once.

Books and Bulletins

ELECTRIC VIBRATION INSTRUMENTS

By A. E. KENNELLY. Published by the Macmillan Company, New York. 450 pages, 214 figures, 29 tables.

This textbook covering the behavior and tests of telephone receivers, oscillographs, and vibration galvanometers covers in a thorough and detailed manner the results of various experimenters in this field.

The greater portion of the book is a treatment of that wonderful and rugged instrument, the Bell telephone receiver. Little information has heretofore been readily available concerning the properties of the telephone receiver as a machine and it is the author's object to present, from an electrical engineering standpoint, the characteristics of the telephone receiver as a reciprocating electric motor.

A notation of some of the contents of this textbook will indicate the thorough

manner in which the subject has been treated. A few of the chapter headings are: The Permanent Magnet of the Receiver and Its Functions, Equivalent Mass of a Diaphragm Vibrating on Its Fundamental Mode of Vibration of a Telephone Diaphragm, Impedance of Telephone Receivers and Its Measurement, Acoustic Impedance, and Influences that Affect the Constants of a Receiver.

To quote from the author—"The central idea in the preparation of the material for this book has been the wonderful and fascinating analogy between the laws of mechanics for a simple vibrational system, and the laws of electromagnetics for a simple alternating current or oscillating-current system."

The technique of experimentation on telephone receivers as well as the analysis of and conclusions from such experiments is an outstanding feature of the book. For this reason it should prove an excellent textbook for students of telephone engineering as well as a reference book on the subject of the receiver for telephone engineers.

The latter portion of the book is devoted to a study of the oscillograph and the vibration galvanometer. The chapter covering oscillograph meters, a device for measuring the constants of an oscillographic vibrator and its resonant frequency, is of particular interest to anyone engaged in investigations with the oscillograph. The methods of testing and the conclusions to be obtained from such tests are treated in detail.

A little less than one quarter of the book is devoted to an appendix wherein a detailed mathematical treatment of the subject is given. Also five pages covering a rather complete bibliography is included at the end of the book.

The author is to be congratulated for making available in such an excellent text information which should be of value to telephone engineers, research workers, and students of this branch of electrical engineering.

E. R. S.

The Roller-Smith Company, New York, N. Y., has published Bulletins No. 450 and 560 dealing with alternating current switchboard instruments and "Safety" circuit breakers, respectively. The first bulletin contains illustrations and complete descriptions of the ammeters and voltmeters, wattmeters, frequency meters and power factor meters manufactured by the company. Included in this bulletin is a description of the new type LIDA wattmeter which is designed for use in class rooms. The dial is visible from a considerable distance. Bulletin No. 560 presents a description of types P and E enclosed circuit breakers.



Pacific Coast Annual Convention at Del Monte, Calif., Oct. 2-5, 1923.

Meetings

San Diego Schools to Cooperate with Electrical Men

A pledge to support the vocational education and guidance plans of the San Diego city schools was given to Henry C. Johnson, city superintendent of schools, when he talked before the Electric Club of that city at its regular noon meeting, Oct. 2. The plan is to have instructors from the high schools meet with committees of the Electric Club to discuss ways of making the courses thoroughly up-to-date and practical from an industrial standpoint. Students taking electrical courses will be sent to receive interviews on some of the practical aspects of their courses with electrical men of the city, it was also promised.

Mr. Johnson gave an instructive talk before the Electric Club, detailing the methods employed in the city high schools to promote educational training of youths who would not for many reasons be able to go on to colleges. "It seems to me that schools must organize to do high-class skilled work," he said. Direction of student reading along vocational lines, fitting courses to pupils rather than pupils to arbitrary courses, and vocational civics were described as the methods employed. Breaking down prejudice against manual labor was one of the most important things accomplished, he pointed out.

Mr. Johnson at the close of his talk asked the cooperation of the club in vocational training of students, which was extended to him on behalf of the club by "Jess" Zweiner, the president. A. E. Holloway had charge of the program of the day in the absence of Walter Wurfel and the next meeting program was assigned to G. H. P. Dellman.

The death of an active worker in the club, Walter Draper, on Sunday, Sept. 30, was announced by President Zweiner. Sydney Gaines, in charge of the electrical department of Whiting-Mead, was introduced as a guest in the meeting.

At the previous week's meeting of the club, held on Sept. 25, and attended by 40 members, a great deal of enthusiasm was shown and the year begun in earnest with considerable discussion of the reasons why the club should plan regular weekly programs. Walter Wurfel, Al Schrieber, Harry Dietrich of the Baker-Joslyn Company, Los Angeles; K. A. Macomber; C. C. Clardy, W. H. Talbott, and President Zweiner spoke in favor of continuing weekly programmed meetings. On being assured that this plan met with greatest favor President Zweiner appointed Fay Smalley chairman of the program committee and assigned the first program to Walter Wurfel. P. P. Pine, secretary-treasurer of the club, also urged cooperation with the committee.

An increase in membership of 15 with a like number of prospects was announced. Guests of the day were A. E. Mason, new superintendent of equipment for the electric railway company,

W. A. Hillebrand of the Ohio Brass Company who was in San Diego to supervise the construction of a catenary overhead system on the street railway, and A. R. Whisler, of the San Diego Consolidated Gas & Electric Company. Wm. A. Cyr was appointed in charge of club publicity.

A description of the work involved in the establishing of telephonic communication between the United States and Cuba was presented to members of the Denver, Colo., section of the American Institute of Electrical Engineers at a meeting held at the Adams Hotel in Denver on Sept. 21. H. S. Osborne, transmission engineer of the American Telephone & Telegraph Company of New York, N. Y., was the speaker of the evening.

Memorial services in honor of the late John A. Britton, former vice-president and general manager of the Pacific Gas and Electric Company, were held on Oct. 7, in each of the principal towns served by that company. The services were held under the auspices of the Pacific Service Employees' Association.

N.E.L.A. Electric Truck School Held at San Francisco

Realizing that the establishment of an electric vehicle bureau increases the possibility of service to the community and at the same time makes for increased revenue to the central station, the Pacific Gas and Electric Company in cooperation with the National Electric Light Association has established such a bureau and has, in addition, held an electric truck school.

Invitations were extended to other central station companies to attend and these invitations were gladly accepted. The purpose of the school was to discuss the problems surrounding the de-

COMING EVENTS

California Industries Exposition—
Exposition Auditorium—San Francisco, Calif.
Nov. 17-Dec. 2, 1923

velopment of electric vehicle business and to develop the sales abilities of the men concerned.

The officers in charge of the school were E. J. Power, director, Transportation Bureau, Pacific Gas and Electric Company, San Francisco, Calif., dean; E. S. Mansfield, superintendent, Operating Bureau Accounts department, Edison Electric Illuminating Company, Boston, Mass., chairman of the faculty; Charles R. Skinner, Jr., manager, Automobile Bureau, New York Edison Company, New York City, vice-chairman; Horace S. Meese, transportation consultant, Commercial Truck Company, Nicetown, Philadelphia, Pa., secretary.

The school course included the discussion of motive equipment, trucks and accessories, batteries, garaging, city deliveries and transportation engineering. The school lasted 6 days—Oct. 8-13—and was well attended. Discussion of the various problems was conducted by the men who have specialized on these matters and full sales information was given, as was also the technical information necessary for the intelligent development of electric vehicle business.

New Manufacturers' Division of Denver League Formed

The permanent organization of the manufacturers' division of the Electrical Cooperative League of Denver, Colo., was complete on Oct. 2. Harry Randall, district manager of the General Electric Company, was elected chairman of the division and L. J. Bridger, of the merchandising department of the Westinghouse Electric & Manufacturing Company, was named vice-chairman. F. J. McEniry, field representative of the League, was chosen secretary of the division.

Meetings of the division will be held the first Tuesday evening of each month, the next meeting to be held Nov. 6. It was decided that the division would endeavor to render further assistance to the League in the maintenance of its information bureau, by the completing of the League's files of catalogs and data books. As a further means of developing close relationship between architects and the electrical manufacturing interests, and thereby widening the scope of the Electrical Cooperative League's educational activities, members were urged to mail suggestions to the secretary of the newly formed division and that these be presented for discussion at the next meeting.

The following manufacturers were represented at the organization meeting: Decorative Art Shops, J. E. Bullock; Commercial Switchboard Manufacturing Company, A. H. Cook; General Electric Company, H. D. Randall; Automatic Electric Washer Company, John J. Crowe; Hazard Manufacturing Company, E. P. Kipp; Bryan-Marsh Division, National Lamp Works, H. W. Coombs; Economy Fuse & Manufacturing Company, F. L. Easton; Alex Hibbard, Inc., H. A. Hibbard; Hubbard & Company, M. M. Johnson and Earl Wesel; National X-Ray Manufacturing Company, R. D. Thomas; Albert Sechrist Manufacturing Company, R. W. Elliott; B. K. Sweeney Electrical Company, H. W. Fishburn; Mountain States Machinery Company, N. C. Olin; Westinghouse Electric & Manufacturing Company, L. J. Bridger.

Commercial Section Meeting to Be Held at Fresno

The meeting of the Commercial Section of the Pacific Coast Electrical Association has been called and will be held at Fresno, Calif., Oct. 19-20. There will be meetings of the various subcommittees including the following:

- Competitive Power
- Commercial Lighting
- Industrial Heating
- Sign Lighting
- Street Lighting
- Central Station Activities
- Allied Industries
- Commercial Trucks
- Batteries
- Appliance Sales
- Ranges and Water Heaters.

The executive committee meeting is called for eight o'clock on the morning of Oct. 19 and, together with all meetings, will be held at the Fresno Hotel.

Manufacturer, Dealer and Jobber Activities

The Baker-Joslyn Company has recently moved its San Francisco office to its new building located at Second and Bryant Streets in that city. The new location is convenient to the wholesale district and also to shipping facilities. The concern's telephone number remains unchanged.

The Wells-Morris Company, of San Francisco, Calif., has brought out a new commercial type electric waffle iron. The base is of attractive appearance, being finished in vitreous white enamel with back plate of the same material. The switch positions are marked on the back plate. Two irons are mounted on one stand and each iron consumes 660 watts at high heat. Three heat control is provided. An important fact in connection with this iron is that it may be used on ordinary lighting service wiring.

The Russell Electric Company, Chicago, Ill., has recently placed on the market a six-cup aluminum percolator. The new percolator will be known as one of the Hold-heat products.

The General Electric Company has published Bulletin No. 47635 which deals with types PQ-25 and PQ-26 under-voltage relays. These relays provide protection to apparatus from damage caused by sudden return of supply voltage after its failure or reduction. The relays are used for tripping electrically operated circuit breakers when the voltage has been decreased to a certain predetermined value; for automatically disconnecting motors on under-voltage, thus preventing them from restarting unexpectedly on return of voltage with possible damage to driven machines, and in any case where it is desirable to operate an auxiliary circuit on the occurrence of a decrease in voltage. The type PQ-25 is for single-circuit control while the type PQ-26 is for two-circuit control.

The Packard Electric Company, Warren, Ohio, has recently broken ground for a new factory at Warren. The new factory is expected to be ready for occupancy about the first of January. A considerable amount of alteration work will be done on the present plant and this together with the addition will approximately double the capacity of the transformer manufacturing concern. The addition will cost in the neighborhood of \$350,000.

The Electric Fireplace Sales Company, Chicago, Ill., has recently placed on the market a new fire-place heater known as the Ruby Coal Electric Fires. The device is designed to present the appearance of a standard coal fire basket and can be so regulated that it either gives the appearance of giving off heat or actually does give off heat. The device is rated at 660 watts when the heating element is attached and at 120 watts when only the lighting elements are in operation. Electric lamps illuminate the Ruby Coal when only an ornamental effect is desired.

The F. W. Wakefield Brass Company of Vermilion, Ohio, has prepared a

broadside which gives additional figures on results secured from recent kitchen lighting campaigns. The company is the manufacturer of "Red Spot" hangers.

The Century Electric Company, St. Louis, Mo., has published a net retail price list, effective Oct. 1, 1923, covering the company's line of squirrel cage induction polyphase motors. The company has also prepared a delivery charge sheet effective the same date.

Benjamin Electric Manufacturing Company, Chicago, Ill., has recently announced that it will conduct a prize contest among electrical dealers during the week of Oct. 24-31. The contest is to be one which will be judged upon the attractiveness of the window displays that the dealers present. The rules of the contest state that the window trimming material furnished by the company must be used and that the displays are to feature the Benjamin two-way plugs. First prize will be \$100, and thirteen other prizes will be awarded. Dealers can secure the window trimming material by writing the advertising department of the company. All photographs of windows must be in the company's offices by Nov. 10. Jobbers' salesmen will also be entitled to receive prizes as the company has offered four prizes to be awarded to the salesmen who turn in the greatest number of entrants who use the window trim and submit a photograph.



If V. L. Board and D. C. McClure, of the Denver Gas & Electric Light Company, had been driving an electric vehicle instead of the universal pest they would not have been put to the indignity of making repairs under the public gaze on Champa Street in Denver, Colo.

The Reliance Electric & Engineering Company, Cleveland, Ohio, has recently published the fourth edition of Bulletin No. 2014. This booklet is devoted to the description of the type T heavy duty Reliance motors for direct current. The booklet presents illustrations of the motors and of the component parts thereof. An interesting description of the processes of manufacture is also contained in the bulletin. The usual rating and specification tables are made a part of the bulletin. Illustrations of typical installations show the wide variety of application that is possible with the motors.

The Ward Leonard Electric Company, Mount Vernon, N. Y., has developed a very simple method for charging automobile storage batteries, by means of a 32 to 40-volt plant. Vitrohm resistor

units are used in the work. These units are of the standard Ward Leonard Vitrohm construction, the resistance wire being wound on a porcelain-like tube and then enveloped in a coating of vitreous enamel. The tube has a standard lamp base which fits in any standard porcelain receptacle and one unit is sufficient for charging any battery up to three cells. One or more units can be assembled on a heat resisting base and connected on the line.

The Coast Equipment Company, of San Francisco, has moved from 706 Folsom Street to 85 Columbia Square, between Folsom and Harrison Streets. The company specializes in industrial engineering work and is the factory representative for a number of eastern manufacturers. The concern has the sole agency for Ridgway turbo-sets, London small turbines, Burke induction motors, Jeannin single phase motors, Hopewell moulded insulation, Franklin bus bar supports, Duncan meters, Federal spot and butt welders, Western transformers, Burke arc welders, Pittsburgh electric furnaces and the line manufactured by the States Company of Hartford, Conn.

The Atlantic-Pacific Sales Company, San Francisco, Calif., has been appointed sales agent for the Wells-Morris Company, San Francisco.

The National X-Ray Reflector Company, Chicago, Ill., has recently published three new bulletins for the trade. These circulars are known as Serials 427, 428 and 429. The first folder contains descriptions of the three new reflectors designed for 50-watt mill type Mazda B lamps. Bulletin No. 428 is devoted to a description of the "Hippo" reflector and the show window flood light No. 33. The third bulletin is devoted to the illumination of office and manufacturing plants.

The Apex Electrical Distributing Company, Cleveland, Ohio, has recently announced that Mrs. Jane Carroll has been appointed to head the company's new home economics department. Mrs. Carroll has been considered as one of the leading home economic experts of New York City and has established for herself a reputation as a teacher and writer on home electrical subjects. Her first work with the company will be to travel around the country and educate the various district managers on the merits of the Apex company's latest appliance, the Rotarex electric Kook-Rite. Later she will conduct an electrical housekeeping school for the exemplification of better methods of cleaning, washing, ironing and cooking.

The Mitchell-Rand Manufacturing Company, of New York, N. Y., has recently published a new catalog, known as No. 423. The new publication resembles a handbook more than it does a catalog, because of the variety of material that is contained therein. The handbook is entitled "Everything in Insulation," and in describing the various products manufactured by the company gives a list of the uses of each product as well as a statement of the requirements that must be met in preparing the particular article. A number of miscellaneous tables appear in the back of the book and together with the rest of the information that is presented should prove quite useful to contractors, motor repair men, as well as central station men.

Personals

Guy W. Faller, since 1913 vice-president and general manager of the City Light & Water Company, Amarillo, Texas, has been appointed assistant



GUY W. FALLER

general manager of the Denver Gas & Electric Light Company and has already assumed his new duties. He was formerly with the Denver company, having served as assistant foreman of the street department, engineer of the gas distribution department, and then as assistant superintendent of the gas and street department until his transfer to Amarillo in 1905 as general superintendent of the company. As a native of Wisconsin he was appointed to the United States Naval Academy in 1894 and graduated with the class of 1898 just in time to take an active part as an engineer officer in the Spanish-American War and Philippine Insurrection. He resigned from the navy in 1903 to become the operating engineer of the Madison (Wis.) Gas & Electric Company and remained there until his first transfer to Denver by Henry L. Doherty. During the World War, he was one of the leaders in war work activities at Amarillo as campaign manager of the first Red Cross roll call and Third Liberty Loan drive and treasurer and manager of the United War Work campaign. While in Amarillo he also served one term as president of the local Rotary Club. During the existence of the Amarillo Street Railway Company he served as vice-president, general manager, federal receiver, and special master of the company.

F. H. Murphy, illumination engineer, Portland Railway, Light & Power Company, Portland, Ore., was recently in San Francisco. Mr. Murphy was also present at the convention of the American Institute of Electrical Engineers at Del Monte.

Otto Jeancon, who had been in charge of the El Centro branch—since sold out—of the Southern Electric Company, became sales manager of the concern as Earl D. Myers left, taking charge in this new position of the appliance and other departments.

Carl D. Luscomb, for several years assistant to C. A. Semrad, vice-president and general manager of the Western Light & Power Company which was recently merged with the Denver Gas & Electric Light Company to form the Public Service Company of Colorado, has been appointed general superintendent of the division operated by the former company and will continue to make his headquarters at Boulder, Colo.

William Shannon, of the Seattle office of Stone & Webster, has been transferred to the San Francisco office of that company. Mr. Shannon is well known as an engineer in the Northwest.

L. A. Osborn, president of the Westinghouse International Company, and Guy E. Tripp, chairman of the board of directors of the Westinghouse Electric & Manufacturing Company, arrived in San Francisco early in October on their way to Japan and sailed on Oct. 10. They will assist in the problem of reconstruction of electrical enterprises in that country and will be guided in their plans to a considerable extent by the California development which can be used as a basis for the rebuilding of Japan's electric system. From Japan Mr. Tripp and Mr. Osborn will go to China and India before returning to this country.

O. N. Toomey, of the General Electric Company, Portland, Ore., was a visitor to San Francisco recently during the visit of Dr. Steinmetz.

K. G. Rennie, of the Chicago Electric Sign Company is a recent visitor to San Francisco.

W. C. North, of the General Electric Company, was recently in San Francisco, coming from the general headquarters at Schenectady.

A. D. Stewart has been appointed branch manager of the Butte office, Westinghouse Electric & Manufacturing Company, succeeding R. J. Cobban, who has been transferred to the Seattle office. At Seattle Mr. Cobban will give special attention to mining activities.

L. C. LaMont has been appointed office manager of the Los Angeles office, Westinghouse Electric & Manufacturing Co., succeeding J. R. Deering who has resigned.

Harry L. Barker, general manager of the Meadows Manufacturing Company, recently spent some time on the Coast visiting the various concerns which distribute his goods.

S. F. Snow, Graham-Reynolds Electric Company; C. E. Listenwaller, Listenwaller & Gough; R. L. Hutchinson, Brown & Pengali; L. D. Ingam, Electric Lighting & Supply Company and Anson H. Rees, Illinois Electric Company, were among the Los Angeles electrical men who attended the Convention of the Pacific Coast division of the National Association of Purchasing Agents. The motto of the association is "Our purchases are \$2,000,000 annually. Do you get your share of it?"

C. R. Dodge, of Dodge Brothers Electric Company, Salt Lake City, Utah, has returned from an extensive trip East during which he visited several equipment factories. He reports a very pleasant trip.

Fred Mulvaney of the Pacific States Electric Company, Portland, Ore., was a visitor in San Francisco while en route to the convention of the American Institute of Electrical Engineers.

John Werner has been made manager of the household goods department of the White House, San Francisco, Calif. Mr. Werner will have charge of the sales of electrical appliances and supplies for his firm.

A. E. Everett, of the General Electric Company, Schenectady, N. Y., was in San Francisco recently while on his way to the convention of the A.I.E.E. at Del Monte.

F. R. Lack, an engineer of the International Western Electric Company, has received notice that the Emperor of Japan has bestowed upon him the sixth class of the Imperial Order of the Rising Sun. The award is in recognition of his services in connection with the installation of the first printing telegraph in Japan.

R. R. Easter, of the North Coast Power Company, Hillsboro, Ore., was among the electrical men of the Northwest who attended the convention of the American Institute of Electrical Engineers at Del Monte. Mr. Easter also spent a few days in San Francisco on his way home.

Clark R. Jackson, formerly state commissioner of Washington, has been appointed superintendent of public utilities of Seattle by Mayor E. J. Brown.

A. E. Holloway, superintendent of the commercial department, San Diego Consolidated Gas & Electric Company, San Diego, Calif., is the new chairman of the Commercial Section of the Pacific Coast Electrical Association. Mr. Holloway was born in Colfax, Ind., and received his early education in Logansport. In 1909 he graduated from Purdue University with the degree of Electrical Engineer. Shortly after graduation he joined the staff of the Westinghouse Electric & Manufacturing Company and in 1910 was sent to San Diego. In February of that year he became new



A. E. HOLLOWAY

business solicitor for the San Diego Consolidated Gas & Electric Company and later in the year was made superintendent of new business. Some time after appointment to this position he was made superintendent of the commercial department and has since held that position. Under his direction the commercial department of his company has made notable progress.

H. C. Barnard, of the National X-Ray Reflector Company, San Francisco, Calif., was a recent visitor to Salt Lake City, Utah.

C. R. Bach, western representative of the Manhattan Electrical Supply Company, San Francisco, Calif., was a recent visitor to Salt Lake City.

Geo. R. Shuey, with the Department of Public Service of the City of Los Angeles, Calif., has been transferred from Fresno, Calif., to Independence, California. At Fresno Mr. Shuey had charge of the city's power interests on the Kings River. In his new position he will direct the water development program of the city in Owens Valley.

R. R. Robley, operating engineer of the Portland Railway Light & Power Company, left Portland recently for the Schenectady works of the General Electric Company, where he will spend six months in the study of engineering problems. Mr. Robley was chosen by the Portland company to represent it on an exchange of engineers plan, by which the two firms exchange two engineers for six months, the two men remaining on the pay-rolls of their respective companies. R. M. Rankin of the Lighting Engineering department at Schenectady will spend six months in Portland devoted to the study of the problems of the Portland company. It is believed that much good will result from this arrangement. Mr. Robley will soon be a candidate for the Portland Railway Light & Power Company's Twenty Year Club, having been in continuous service since 1904. He is a western man, born in Walla Walla, Wash., and educated in western schools. After receiving an electrical engineering degree at the University of Oregon in 1901 he spent some three years in electrical construction. His first job with the Portland General Electric Company (one of the predecessors of the present company) was as a construction man at the time that Station E steam plant was built. When the Cazadero hydroelectric plant went

Ralph A. Hopkins, manager of the engineering division of the Los Angeles, Calif., office of the Westinghouse Electric & Manufacturing Company has recently left on a trip to Chicago, East Pittsburgh, New York and other cities, visiting the various factories of his company.

Robert Miller and H. T. Plumb, of the General Electric Company, were among the eastern men in attendance at the Glenwood Springs, Colo., convention of the National Electric Light Association.

Earl D. Myers, for twelve years with the Southern Electric Company of San Diego as manager of the appliance department, left the employ of that concern on Oct. 6 to enter into a retail merchandising business for himself. His establishment is situated in a new business center rapidly growing up in that city, near 30th and University Streets. Mr. Myers plans to do only a retail electrical business in his new venture.

W. W. ("Duke") Spangler, assistant manager of syndicate operations of the Westinghouse Electric & Manufacturing Company in its New York office, was a recent visitor to Seattle, where he visited his brother, J. W. Spangler, president of the Seattle National Bank. Mr. Spangler was formerly treasury representative of the Seattle branch of the company.

George T. Bigelow, assistant general agent, The Southern Sierras Power Company, Riverside; H. H. Courtright, Valley Electrical Supply Company, Fresno; R. E. Fisher, vice-president in charge of public relations and sales, Pacific Gas and Electric Company, San Francisco; C. C. Hillis, president and treasurer, Electric Appliance Company, San Francisco; W. S. Berry, manager, Western Electric Company, San Francisco; F. H. Woodward, general sales manager, Great Western Power Company, San Francisco; Don Ray, manager, bureau of public relations; Pacific Gas and Electric Company, San Francisco; R. A. Balzari, manager, industrial division, Westinghouse Electric & Manufacturing Company, San Francisco; Tracy E. Bibbins, president, and Dave E. Harris, vice-president and sales manager of the Pacific States Electric Company, San Francisco; Roscoe Oakes, Pacific Coast manager, National Carbon Company, San Francisco, and A. Emory Wishon, vice-president and manager, San Joaquin Light & Power Company, Fresno, were among those who were in Los Angeles to attend the October meeting of the advisory committee of the California Electrical Cooperative Campaign.

L. F. Blum, of the General Electric Company, Pittsfield, Mass., is a recent visitor to San Francisco, having stopped there on his way to the convention of the A.I.E.E. at Del Monte.

R. C. W. Libbey, of the Simplex Electric Heating Company, Cambridge, Mass., is conducting an intensive sales campaign in southern California.

Vladimir List, professor of electrical engineering, Brno Technical University, Czechoslovakia, was in attendance at the convention of the American Institute of Electrical Engineers at Del Monte. Professor List also attended a meeting of the San Francisco Electrical Development League and gave a short talk on his impressions of America and American electrical development.

Grover Anderson, recently appointed sales manager of the Electric Appliance Company, San Francisco, Calif., was born in Omaha, Neb. He was educated in the schools of that city until 1905 when he moved to San Francisco and continued his schooling there. In 1907 he joined the sales force of the Electric Appliance Company and, with the exception of a few months, has been with that firm ever since. From 1912 until 1917 he traveled for his company and during the latter year he left for a



GROVER ANDERSON

few months, rejoining the firm in 1918 as assistant city sales manager. In 1918 he was made city sales manager which position he held until his appointment in 1923 as sales manager.

Obituary

Grant Smith, head of the contracting firm of Grant Smith & Company, died after a brief illness in St. Paul, Minn., on Sept. 27. Mr. Smith was 55 years of age at the time of his death. Mr. Smith, whose firm holds the contract for the erection of the new Hotel Olympic in Seattle, was one of the pioneer contractors of the West, but his construction activities extended to all parts of the United States. Included in his many constructional projects are the two pipe lines for the Seattle Cedar River water system; a considerable part of the Northern Pacific and Great Northern Railways through Washington, Montana and Idaho; many of the larger buildings in Seattle; a large part of the Catskill Aqueduct in New York; a portion of the new New York subway system, and the U. S. Navy hangar at Lakehurst, N. J. Head offices were maintained in Seattle, with branch offices at various points throughout the United States.

J. E. Todd, superintendent of the Lamar (Colo.) municipal plant was murdered recently while on an automobile trip from Wichita, Kan. Mr. Todd was one of the most prominent electrical men in the state and his death will be felt by the entire industry. According to the authorities they have captured two young men of 18 and 21 years, respectively, who, it is claimed, have made a full confession.



R. R. ROBLEY

in Mr. Robley had charge of the electrical work and in 1910 was made operating engineer, which position he still holds. He has held various positions in American Institute of Electrical Engineers and National Electric Light Association affairs, including the chairmanship of the apparatus committee of the Northwest section of the National Electric Light Association.

Trade Outlook

San Francisco

Building continues in unusual volume and labor is well employed at the prevailing high costs.

Sales are generally satisfactory, particularly in furniture lines. Prices in these lines are somewhat lower than last year and volume exceeds that period. Fall merchandise movement has been delayed somewhat by warm weather but the undertone is firm.

Metal products and machinery are moving well. There have been some price reductions in metal products.

Bank clearings continue to increase and money is available at normal rates.

There have been several additions to the established electrical lines and dealers are buying in anticipation of holiday demand. Stocks are in good condition.

Los Angeles

Building continues active and permits to date are \$56,000,000 ahead of the 1922 nine-month period.

The September imports and exports through the Port of Los Angeles were \$569,383 in excess of the figures for the same month a year ago.

The continued growth of Los Angeles is shown from the earnings of the Southern California Edison Company and the Los Angeles Gas & Electric Corporation. The gross earnings for the calendar year 1923 of the former company should exceed the 1922 total of \$16,982,225 by at least 15 per cent, while for the latter, the gross earnings for the year ended Aug. 31, were \$12,198,728 as against \$11,440,030 for the preceding year.

Manufacturers and wholesalers report excellent business conditions prevailing, whereas electrical retail dealers show a slight falling off for the month of September over the month of August; this is true of both electrical appliances and of radio; however, the fall outlook is very bright and retail business should pick up considerably during the present month.

Portland

Building permits in Portland increased 40 per cent, bank clearings 15 per cent, exports 5 per cent and postal receipts 7 per cent over September, 1922. A definite increase in retail buying is noticeable of late and the prospects for a record holiday trade are good.

Fall buying of lumber is heavy resulting in increased activity at the mills. Lumber shipments for the first nine months of the year to Pacific Coast ports were more than double the shipments of a year ago.

Considerable uncertainty exists among local interests regarding the effect of the Japanese disaster on the off shore commerce, particularly in lumber and grain. There have been some cancellations and others may follow. It is thought, however, that eventually these losses will be more than made up.

Sales of electric ranges are being pushed aggressively by power companies and dealers following the Oregonian Cooking School.

The weather continues favorable for all kinds of construction work. Labor has no difficulty in finding employment and there are strong indications of wage increases in the building trades.

Seattle

Japanese orders for lumber are earlier than expected and the initial order has been received for 80,000,000 ft. This business will react advantageously for all lines of trade. Lumber shipments from Pacific Northwest ports have already exceeded those of the same period of 1922 by more than 11 per cent.

Building continues active, with a number of new projects outlined during the past month, and there is renewed confidence in anticipation of continued prosperity. Money is becoming easier.

Retail business since the opening of fall buying has been gratifying, department stores report, and it is believed that sales totals will increase as the season advances. Collections are reported to be fair.

Electrical jobbers and dealers report a satisfactory fall business, with stocks in good condition, and market firm.

Spokane

Bank clearings for September show an increase of 8 per cent over those for August and 10 per cent higher than for September, 1922. The total clearings for the first nine months of 1923, were nearly 10 per cent higher than for the same period in 1922. This general increase corresponds to the improvement in lumbering, mining, agriculture, horticulture and stock raising.

The wheat and fruit crops of the Inland Empire are being moved satisfactorily.

A "Home Exhibition Week" will be held Oct. 15 to 20, in Spokane, under the auspices of the Realty Board and it is expected to stimulate interest in building, which has been rather low this year. The Western Pine Manufacturers' Association report shows a 10 per cent increase in cut over August, 1922.

On account of the low price for zinc, one of the large producing mines in the Coeur d'Alene district will shut down in October, though it is expected that the market conditions will warrant resumption of output in a short time. The Allenby Copper Company of Princeton, B. C., is preparing for large operations beginning in November, when they will put in service a 2,000-ton concentrating plant.

The local packing plants and flour mills are still running at high output.

Denver

Improvement in the economic position of agricultural, mining, and banking interests is in evidence. Recent rains distributed over the mountain area have

revived ranges and pastures and insure bumper crops and an abundance of feed to carry livestock through the coming winter. Harvesting has been delayed by cool wet weather. The sugar beet crop will exceed that of last year with greater returns to the farmer, thanks to the increased price of sugar.

Denver leads all cities in the Tenth Reserve district in savings deposits, and checking deposits in local banks show over a two million dollar increase since the July reports. Clearings for the month of September totaled \$134,937,823, an increase of 2.5 per cent over the same month last year.

Local manufacturing plants are operating steadily and in some instances working forces have been increased. Labor is scarce in many parts of the state, a shortage in the smelters at Leadville being attributed to the movement of workers to the agricultural districts. Aggregate value of metal mines in this region shows a marked increase over 1922 both in value and quantity of ore. Soft coal mining operations as well as metal mining show a fifty per cent increase over last year.

Building permits up to Oct. 1 already amount to within \$1,623,645 of the total amount of building done during 1922, which was the greatest building year in Denver's history. Permits issued during September amounted to \$2,011,000 and there is still little sign of any cessation of activity, although building is confined more to larger projects than it was several months ago.

Local electrical jobbers and manufacturers report a fair volume of business with better profit margins while all of the principal central stations are reporting an increase in gross revenues. The situation with the contractor-dealer is practically unchanged.

Salt Lake City

Based on actual figures up to Oct. 1, 1923, and estimates for the remaining three months of the year, building permits in Salt Lake City for the year 1923 will exceed those of 1922 by 40 per cent, in amount of money represented.

Considerable progress is being made in the work of the Columbia Steel Company. Iron ore from the company's properties in Iron County will begin arriving in Ironton, near Provo, Utah, about the first of November. In the meantime construction work on the new steel plant is thirty days ahead of schedule. This new iron and steel industry is looked upon as a very important factor in the program of industrial development which is now very much in evidence in the intermountain section.

The mining industry continues to thrive. The demand for copper is reported as being remarkably good, despite the low price quoted for the metal.

The sugar-making campaign is now under way, with the numerous factories throughout this section operating at full capacity.

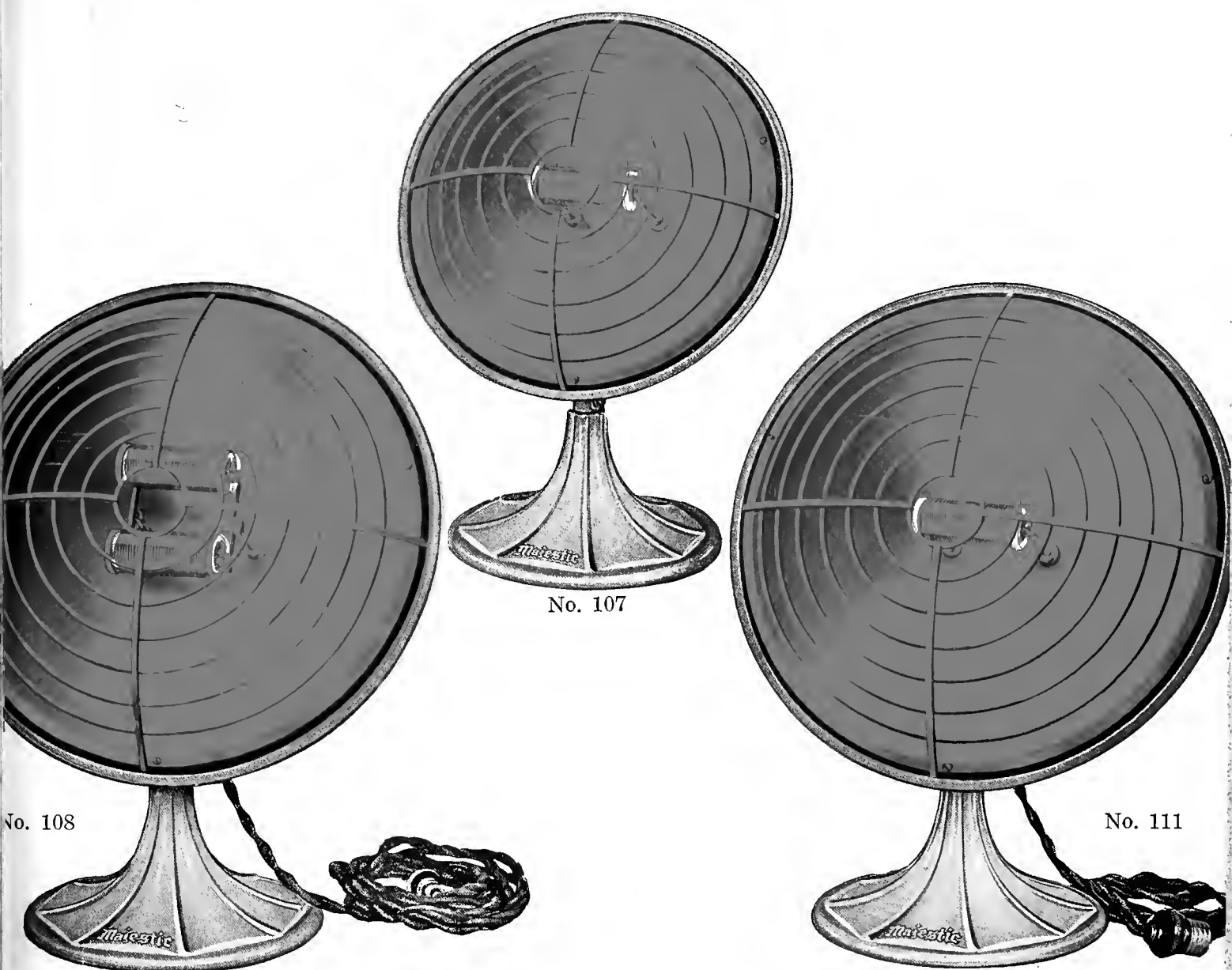
Electrical jobbers continue to report business showing a substantial increase as compared with the same period last year. The retail business, however, generally speaking, is showing continued improvement, with considerable activity in construction material, wiring supplies, etc.

Journal of Electricity

25 Cents a Copy

November 1, 1923

San Francisco



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Electric Heaters

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Iron Wires
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Journal of Electricity

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G. W. BARKER, Associate Editor
J. W. OTTERSON, Assistant Editor

G. C. TENNEY, Managing Editor

ROBERT SIBLEY, Consulting Editor
CLOTILDE GRUNSKY, Contributing Editor

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A Few Words About Our New Home

AS this issue reaches our readers, the *Journal of Electricity* will have moved from its old quarters in the Rialto Bldg., to a new location in the Mohr Bldg., 883 Mission St. (near Fifth), San Francisco. The McGraw-Hill publications will occupy the entire fourth floor of this new reinforced concrete building. The space has been fitted up to suit our particular requirements and gives us one of the best equipped publishing offices in the West.

This move has been necessitated by the rapid and continuous growth of the industrial development on the Pacific Coast, a growth in which the *Journal of Electricity* and other McGraw-Hill publications have played no small part. With the increased facilities at our disposal, we will be able to render our clientele a still better and more efficient service.

Certain features of the new quarters we wish to call to the attention of our readers. The illumination of the offices will conform to the latest developments of the art. This is especially true of our composing room where the exacting nature of the work requires a diffused light free from all shadows. Electric heat will be used wherever possible.

We cordially invite our many friends to call and inspect our new plant in San Francisco.

Readers are asked to make allowances for the fact that this issue is a few days late. The moving of our offices explains the slight delay.

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Power



Mr. I. M. Cawshus wanted to save money.

He put it in the bank.

This is what he got.

He saved money.

Mr. Ernest D. Lore wanted to make money.

He used his bean.

He put in a stock of Bryant No. 651 Appliance Switch Plugs.

Every time he sold a percolator, a grill, a toaster, an iron or whatnot, he put a No. 651 on the cord and charged accordingly.

He talked No. 651's to every one of the Christmas shoppers who came to his store.

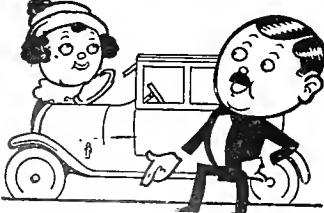
He remembered that while people buy expensive appliances only occasionally, they use them all the time. No. 651 makes them easier to use.

This is what he got.

He made money.

Moral:—the difference between 30 and $4\frac{1}{2}$ is $25\frac{1}{2}$.

Christmas Suggestion:— your wife could use a new sedan this year.



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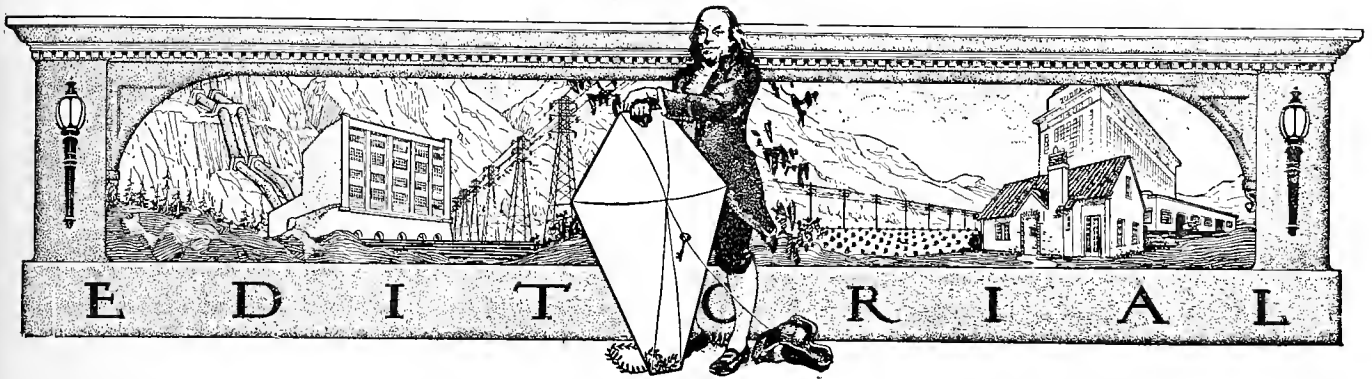
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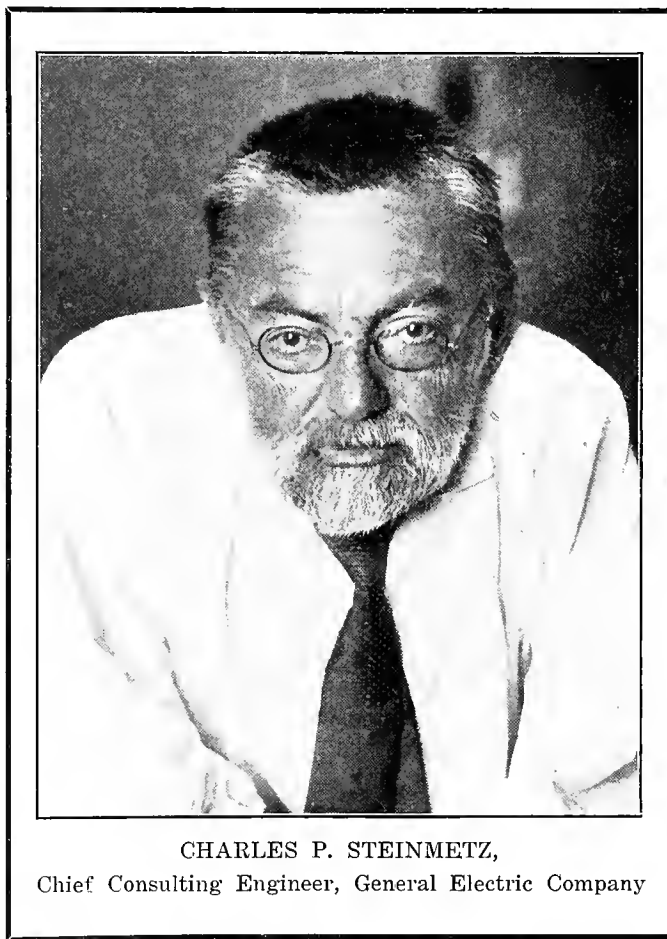
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Charles P. Steinmetz — Engineer, Scientist, Humanitarian

FROM childhood to the end of life Dr. Charles Proteus Steinmetz's reaction to the pressure of his environment is one of the great and beautiful events in human history. Having been denied the advantages of physical strength and comfort he set about in an orderly determined manner to develop the highest possible mental strength of which he might be capable. His purpose was always altruistic; it was ever to help the world as he found it; and to change it from what it was to what it should be.

He became a profound student of the sciences, linguistic arts and humanities. He worked strenuously to accomplish their coordinated understanding. He thus accomplished the development of a "dimensional mind" to an extraordinary degree, a mind that enabled him later in life to do so many things of the highest value in the electrical sciences and industries. With the mental equipments of the mathematician, physicist and chemist he developed extraordinary powers for discerning the nature of the most difficult problems encountered in the promulgation of engineering progress. He was never known to be daunted in such matters; he was as much at ease in the study of the internal energy of the



CHARLES P. STEINMETZ,
Chief Consulting Engineer, General Electric Company

wind wherewith to drive an airplane as of the high voltage phenomena encountered in the transmission of power. He passed through years in which he stood virtually alone as the one man in the world to whom men could turn for effective aid in the solution of the most difficult electrical problems.

Dr. Steinmetz assisted his brother engineers to an untold degree by his books and papers, by his profoundly intelligent vision and by his example of persistent, ably directed enthusiasm. When some declared him a superman he insisted that he was just a plain human being developed by THE WILL TO DO raised to the highest attainable degree. No career can, therefore, encourage the young man more for he is assured on the highest authority that if he will but try he also may contribute greatly to the cause of

human progress and the advancement of civilization.

Dr. Steinmetz was deeply humanitarian and always ready in thought and deed to help his fellow man in every walk of life. His spirit has been communicated to so many that it will live and continue in action as long as there are people to work for a better world.—*Harris J. Ryan*

Utility Advertising and Better Public Relations

AN eastern central station has chosen the phrase "Is Your Service Good? If Not, Please Let Us Know" and has printed it 31,000,000 times in the newspapers of the city which it serves. It has spent a sum equivalent to one cent per meter per month in placing this message before the public.

While the phrase occupied only a small portion of the advertisements published, it demonstrated that utility's faith in one of the first precepts of advertising. A message must be repeated, repeated and repeated and the customer must read it, and read it and read it again. The more it is told, the more it is read; and the more it is read, the better off both company and public will be.

Too few utility executives have faith in the value of advertising as a means of bettering public relations. They have been prone to adopt the stand that since their company was a virtual monopoly, there was no reason for spending money in advertising. As it pointed out in an article on another page in this issue, no utility is so perfect that it has nothing to tell its customers, no new business fields to exploit and no phase of the business which is not fully understood by both people and politicians.

Advertising will better public relations. A series of advertisements designed to inform customers in a comprehensive manner of the service which is being furnished for their use, to acquaint them with the physical extent of the plants and distribution systems and of the duties of the men and women who operate them, is a step in the right direction. It must be remembered that out of correct information comes understanding, and that understanding begets confidence and without confidence there can not be good public relations.

The Thrilling Drama of the Colorado River

WAVE the American flag, shoot a gun in the dark, or have a pretty woman say "damn" and any experienced theatrical manager knows that your act will bring down the house, especially if your audience is comprised of average specimens of the genus, "Great American Public." Artifices such as these are known as "hokum" in the parlance of the stage.

"Hokum" has had its share in popularizing the thrilling western drama, "The Colorado," several scenes of which have already been enacted. Arizona has run away with the villain's role, promiscuously firing heavy artillery whether the scene has been darkened or not. Some of the explosions have been of the pop-gun variety while others have been as effective as shots from a 16-in. naval rifle. For instance, Arizona's recently avowed intention to develop such portions of the Colorado as lie within its borders, sans outside help and sans regard for other states of the Basin, has almost rung down the final curtain.

More recently still, the American Legion, assembled in national convention in San Francisco, has

taken the center of the stage, flag in hand. In a resolution to Congress, the Legion sets down its several reasons for the immediate development of the Colorado River. To quote from the resolution:

"Whereas, This project is vitally necessary to safeguard the lives and property of many ex-service men and thousands of others living in the Lower Colorado River Basin now constantly threatened with devastation and destruction from annual floods of that river, and

"Whereas, Under said project thousands of ex-service men and women would be given the preferred right to acquire homes and farms by entry upon several hundred thousand acres of public lands in Arizona, Nevada, and California now arid and worthless, but which by this project will be made intensively productive and valuable.

"Now be it therefore Resolved, that the American Legion in national convention assembled does hereby call upon the Congress of the United States to adopt a program for the ultimate complete development of the Colorado River and as the first unit of that program to pass legislation that will carry out the recommendations heretofore made by the Interior Department providing for the construction of said Boulder Dam and All-American Canal . . ."

Highly laudable reasons, these. The necessity for flood control is immediate. Homes could be provided for many thousands of ex-service men. No direct mention of power is made in the resolution, indicating that the Legion has no ulterior motives in seeking the development of the resources of the river.

Despite the above mentioned developments, the drama has not yet reached a climax. Congress, an actor which was introduced early in the play, has still some important lines to recite. Arizona may produce a new type of lethal weapon at any time. In the meantime those most concerned in the play must sit back, not knowing whether the final curtain will drop on a comedy, a tragedy, a farce or a red-blooded western thriller in which everyone "lives happily ever after." One thing is certain. There will be more "hokum."

Correctly Analyzing Christmas Buying

IT is a far cry from Christmas buying to football, yet the intelligent merchant will have his entire year's business pointed at Christmas just as a wise coach will have his team pointed for one "big game." Yuletide merchandising is just like merchandising at any other time of the year, only more so. The desire to buy, which must be created at other times of the year, through advertising, window displays and sales, is foremost in the mind of the public. It remains for the electrical merchant to secure his just share of the business which will result.

But before he starts thinking about getting people into his store, he must replenish his stock. It is here that the submerged rocks which have wrecked many a good business ship are to be encountered. Certainly buying is an art which is not

easy,—one which requires diligent study. Nor can selling be classed as one of the simple tasks. But merchandising by the use of known facts and experience plus a generous amount of good common sense, while not easy, can be made at least easily controllable.

Let the electrical merchant who is figuring on a large volume of Christmas business, carefully analyze his sales for past years. By so doing he can almost accurately gage the stocks which will be required this year. Unless he keeps in mind the limitations of his own business, and the needs of his own trade, he may find his shelves filled with non-usable goods and his books filled with red ink entries when the first of the year rolls around.

Two Baskets of Fruit and a Good Lighting Effect

THE proprietor of a large department store in one of our western cities recently purchased two large baskets of artificial fruit to be used in decorating his windows. These cost \$50 each. They were works of art and he was proud of his purchase. He was certain that the baskets of fruit would aid in selling more goods, for decorations of such character add a distinctive touch to the windows and make the display more attractive.

One hundred dollars of inoperative show lighting equipment miscellaneously strewn about in this dealer's windows would look like grim death on a skeleton horse. It would sell nothing. Installed, it would be hidden from view. The public only would observe the result achieved through the use of the equipment,—a flood of brilliant white light or splashes of soft solar. It is the effect that would help to sell the goods. The cause is not a part of the display.

Then why stress the equipment when making a sale of increased show window lighting? Show the effect. That is what the merchant wants to see.

Compared with the cost of window trimming, window lighting is but a grain of sand on an ocean beach. A merchant will spend \$1,000 or \$1,500 for a set of drapes which can be used only for a season. His windows could be equipped with an up-to-date lighting system for less than this sum. He will change his trimmings twice and three times a year, while the lighting system will be adequate for five or ten years.

Is it not time that all branches of the electrical industry joined in proving to the merchant that lighting effect will sell more goods than a basket of fruit?

An Old Pudding with a New Brand of Sauce

TO many people, the term, "government ownership," is a pleasant abstraction that conveys the suggestion of lower costs to the consumer than under private ownership. This idea persists among the unthinking, in spite of the great weight of accumulating evidence to the contrary. Unfortunately, state bureaus and commissions charged with the re-

sponsibility of regulating privately owned utilities do not exercise control over similar state and municipally owned utilities. Thus, the absence of uniform accounting methods make it almost impossible, except by deduction, to make comparisons that would disclose the truth as to the alleged saving of government over privately owned utilities.

It is not especially difficult to camouflage the facts beneath a glittering mass of figures, and, unless their attraction is particularly directed to the absence of such items as taxes—municipal, county, state and national—depreciation, maintenance and upkeep reserves, amortization of bond issues, the reports of government owned utilities may make what appears to be a fair showing.

People seldom go beyond rate schedules in their comparisons, without regard to the fact that the general tax levy is the old reliable that comes to the rescue in providing for whatever deficit may exist as the result of their operations. The something-for-nothing, get-rich-quick song of a Wallingford would provoke nothing more than a smile of derision from the wise man on the street nowadays, but he has yet to learn to recognize the propaganda in favor of government owned utilities as merely a repetition of an age old story in modern clothing. It is a part of the duty of the utilities to see that the passive majority is constantly on the alert or the active majority will put something over on them again.

One Excellent Medium for Transmitting the Service Message

THE matter of public relations is, more than ever before, commanding the attention of all utilities. No single phase of operation is considered so important or so far-reaching. No branch of public service offers such a field for individual initiative and effort. For that reason all utility companies are constantly seeking for ways, means and avenues for improving their position before the public.

It is axiomatic that the things we learn at school remain with us in memory and influence for life. We use always the method of division taught us while children; we carry in mind forever the precepts of the class-room. Everything that is done in the home or office can be traced to education. Sometimes it is called "experience" but experience is after all only one form of education.

For this reason it is only logical that the best place for public service companies to start their service message is in the class-room. The story of service can be told no earlier than to the student at school and can never be so impressively portrayed. By reason of association, too, it can never be made so lasting in effect.

From association and experience it is evident that the domestic science classes of the various school departments and the physics classes offer exceptional advantages for presenting the message of utility. It is a subject germane to the class study and the very nature of public service business lends itself to a fascinating mode of presentation. Where else in daily life can so interesting a story be obtained?

CURRENT COMMENT



One person out of every twelve over the age of 17 gainfully employed in the United States is on the public payroll, according to recent census figures.

The salary bill which the people are paying is nearly \$4,000,000,000 a year. The annual cost of salaries paid directly to active and inactive government employees is \$91 for every person over 10 years of age gainfully employed, who comprise in the last analysis, the large body of taxpayers in the country. It has been ascertained that there are approximately 2,700,000 public servants on the payroll of national, state and municipal governments. Finally, this payroll is costing every man, woman and child in the United States \$34 a year.

Such a stupendous outlay requires constant study if retrenchment is to be brought about. Serious consideration must be given to prevention of waste, duplication and to a reduction of useless functions and services.

It would seem that already the country is burdened with a top heavy load of non-producers, yet every branch of government seems to be striving for means to give employment to additional hundreds and thousands. Public ownership of utilities is one such scheme. No thought is given to the added tax burden which will ensue, nor to the added number of non-producers that will swell the public payroll.

Some one should point out to the poor benighted public the following truth: More public servants, higher taxes, higher cost of living, lower purchasing capacity of the dollar, and lower standards of living. More business in government and less government in business is the answer.

As was to be expected, the announcement by the Public Ownership League of America of a movement for a nation-wide, government owned superpower system, has brought forth a wave of approval from the municipal ownership journals. The Journal of Electricity presaged several months ago this action when the question of superpower was first brought to the attention of the public through the press. To quote from an editorial in the July 15, 1923, issue:

The Press on the Subject of Superpower

Before a beginning can be made, publicity and public sentiment must favor such stupendous developments as will undoubtedly be needed to conserve and utilize our power resources, but there is a grave danger in some of the publicity which has appeared in connection with "superpower." Electricity is associated with magic in the popular mind and

many articles appearing in the popular magazines tend to stimulate this attitude. Writers with little evident knowledge of the engineering difficulties, political procedures, capital requirements or economic aspects of the generation and transmission of electricity draw liberally upon their imaginations to paint misleading word pictures of an immediate era when electricity will be practically free and universally applicable.

The danger lies in arousing an anticipation of realizing the benefits too soon. Demagogues have been quick to appreciate the opportunity to play upon the popular fancy by the promise of government-developed "cheap power." While it was necessary to secure financial aid from the government for the original superpower survey this need no longer be done. The electric utilities are able, and stand ready to effect the desired end at an earlier time than would result from any governmental participation.

The Sacramento (Calif.) Bee heartily applauds the Public Ownership League for its foresightedness and at the same time condemns the private utilities for coincidentally making the same announcement. In commenting upon the statements of noted engineers that superpower systems will ultimately cover the nation, this paper says:

That being so, why should not these vast superpower systems belong to The People and not to the corporations?

Why should not the government, with the aid of the states and of the municipalities, have control of this vast distribution of power, for the benefit of all; not permit private and greedy monopoly to grasp it all, for the enrichment of a few and the exploitation of the many?

And if this public superpower system to cover the continent would be a good thing for this nation and for her people—which it would be—the mere fact that there are great difficulties should be all the more incentive to spur zealous hearts on to an ultimate victory.

The Butte (Mont.) Miner adopts a more modified stand. It merely refers favorably to the enormous savings which would be achieved through the construction of a superpower system, making no recommendation as to who shall own or operate the network. The paper declares:

Whatever is economically correct and promises a tremendous saving in expense is bound to be adopted in the end.

The whole history of industrial endeavor since the dawn of time proves this to be an immutable fact.

Elimination of tax exempt securities either by Congressional action, or in some cases by the action of the legislatures of states themselves, seems a certainty. Nowhere does there seem to be anything but opposition to securities of this nature. Electric light and power utilities will look with favor upon any law which

Tax Exempt Securities and the Press

would remove government bonds of all types from the tax exempt class. It is believed that if such action were taken money rates would be lower on other classes of securities. One thing is certain, taxes would come down.

In commenting upon tax exempt securities and the increased tax rates which have followed the war, especially in municipalities, the Bingham (Utah) Journal says:

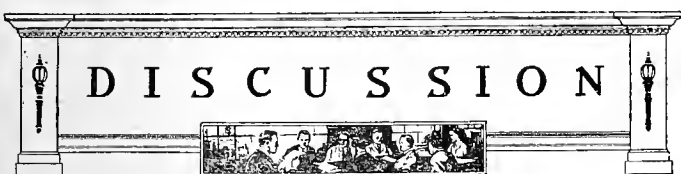
The very fact such bonds are free from federal taxes is an encouragement for their issuance in greater quantity than needed, and is one of the contributing causes of extravagance by states and local governments. The process is much as follows: Because such bonds are exempt from taxation they are easily marketed. Because they are easily marketed, state and local authorities are more disposed to issue them upon the slightest provocation. Knowing this, every interest which wishes something done at public expense finds it very easy to convince state or local authorities that what they want should be granted and the expense covered by bond issue to be paid at some future time.

The same tone is expressed by the Helena (Mont.) Record, in commenting upon the unjustness of tax exempt government securities. This paper states:

But the social injury they do is to put taxes upon the other and poorer people that should be paid by the bond owners. The governments have to be supported, and owners of taxable property support them, while these bond owners enjoy every protection of the governments and pay nothing. Congress should submit an amendment to the constitution making all bonds taxable. The bonds in existence cannot be taxed, but they will mature and disappear in the course of time, forcing the money in them back into taxable property.

According to the Albuquerque (N. M.) Herald, serious consideration will be given to the passage of a law forbidding the issuance of tax exempt securities by government agencies in that state when the legislature again convenes. This paper brings out the following point:

This steady increase of untaxed billions compels a heavier and a heavier tax on land, a progressively heavier tax on railways and other public service corporations, a constantly increasing tax on manufacturers and their equipment; it means more taxes for the storekeeper—and all are passed on to the general public and the consumer with their own special share of the taxes—to be paid ultimately by the householder and the "small" taxpayer.



Nevada Governor Disagrees with Article on Colorado River Development

To the Editor:

Sir: I have recently read the article by Mr. F. G. Baum in the Journal of Electricity dated September 15, 1923 and entitled "Power Must Bear Burden of Development on Colorado River."

While Mr. Baum is a very excellent technical expert his article displays an ignorance of many important economic and political phases of the Colorado River problem. If his suggestions were followed there would probably be no Colorado River development for generations to come, which to certain special interests, may be a most desirable condition of affairs.

On yesterday Governor Hunt of Arizona and his Colorado River committee requested from the Federal Power Commission that Arizona be permitted to proceed in certain plans without reference to her sister states. This request is opposed by all other

interested states as being entirely impracticable and inimical to the public welfare.

After several years of intimate contact and study of the political as well as engineering phases of the problem, I am convinced that the creation of a tri-state authority by Arizona, California and Nevada is the only practicable solution of the problem.

It has been generally agreed among the majority of those who are most familiar with the situation that the following procedure will offer an adequate solution of the river problem.

- (1) A meeting of official representatives of the states of California, Arizona, Nevada and the United States to reach a tentative understanding as to the allocation of water rights, both for power and irrigation, as between the interested states and the Federal Government.
- (2) The ratification by the Arizona legislature of the Colorado River compact.
- (3) The creation by proper action of the legislatures of California, Arizona and Nevada of a "Lower Basin Conservancy Commission" with full power to carry forward a constructive development, engineering, construction and administration of the lower Colorado River.
- (4) The commission to be given corporate power by the Federal and interested State governments enabling it to issue bonds for construction purposes.
- (5) The fundamental work of the board should be flood control with irrigation and power as secondary factors. The flood control feature should be financed by the Federal Government and the appurtenant engineering work should be under the direction of Federal engineers.

J. G. SCRUGHAM,

Carson City, Nev.

Governor of Nevada.

Suggests Possible Remedy for Overcoming Fires of So-Called Electrical Origin

To the Editor:

Sir: After reading a short editorial in your last issue of the Journal of Electricity on the foolish and harmful bugbear of electrical fires I would like to suggest a move, that in my mind, would be wise for the electrical industry to take.

We know as a group that almost, if not all, of the so-called fires from defective wiring are caused by defective fusing. Why not teach the public that the best job is a poor job when incorrectly fused and even an admittedly poor job is at least safe from fire providing the fuses are right?

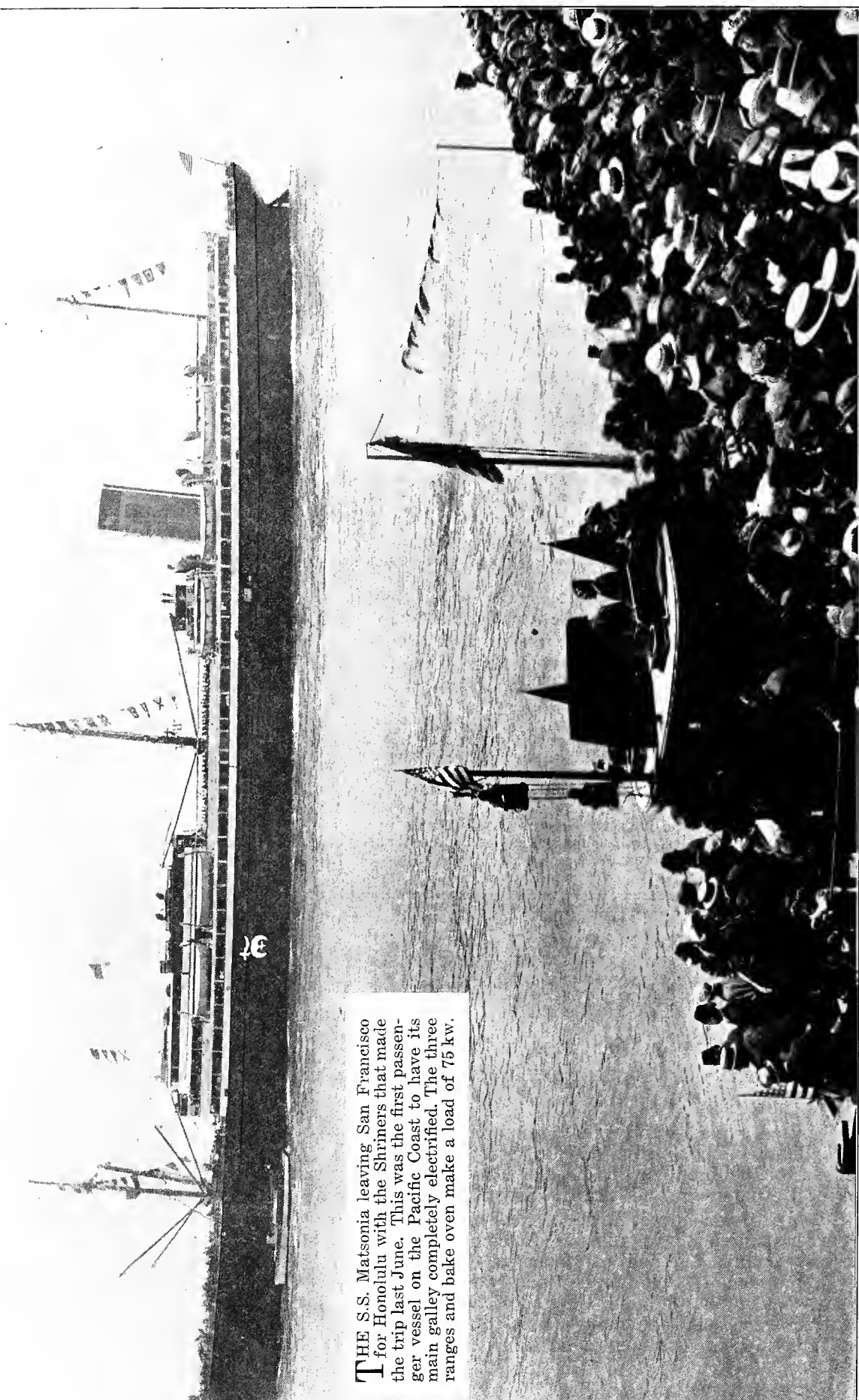
If everyone afraid of electrical fires were authoritatively told that they could eliminate that fear by having a reliable electrical man put their fusing in shape and lock it there, it would add to our volume of business and help quite noticeably in overcoming this unsavory reputation which electrical construction now has.

Why not ask all fire chiefs to report when they think electricity caused it, that the fire was possibly or evidently caused by defective fusing. Think this over.

CHARLES HARTLEY,

Hartley Electric Company.

Ogden, Utah.
Oct. 6, 1923.



THE S.S. Matsonia leaving San Francisco for Honolulu with the Shriners that made the trip last June. This was the first passenger vessel on the Pacific Coast to have its main galley completely electrified. The three ranges and bake oven make a load of 75 kw.

Electrifying the Modern Pacific Coast Passenger Liner

By Millard R. Hickman
Superintending Engineer, Matson Navigation Company

CHRISTOPHER COLUMBUS in sailing westward to "The Indies" probably would have been as terrified as his crew had he passed within hailing distance of the Leviathan which crossed the same seas that he did some five hundred years after his first expedition. His fleet of three boats could all have been stowed away on the new giant of the seas and his 112 men could have been put to work in the steward's department, without the passengers on the vessel noticing any particular crowding.

Despite this advance in the size of the vessels that are designed to travel the seas, the most important step toward making ocean travel a means of transportation which will be enjoyed and desired, is the placing of innumerable comforts and safety devices aboard the present day ocean liner. To have traveled with Columbus would have been a nightmare and to have made the trip from Boston, Mass., to San Francisco in 1834 with Richard Henry Dana would have been nearly as horrible as his report of the trip in "Two Years Before the Mast" indicates. Who would have undertaken either of these trips for pleasure?

The most noticeable advances, making for the comfort of the passengers, have been made during the last fifty years. It is true that the size of vessels has had a considerable amount to do with the comfort of those who traveled, but it is largely the refinements that have been made in appointing the cabins, dining salons, social halls, etc., and the installing of safety equipment that has made the desire to travel by sea a lasting one in the minds of the individual living in the twentieth century.

In the days when the Clipper ship sailed from Massachusetts to California, the passenger was allotted a dismal cabin lighted by oil lamps, and totally unheated. Meals consisted largely of salt pork and canned goods, supplemented by hard bread. Fresh meat was an unknown article on the menu. Food was cooked on a wood or coal burning range which despite the cook's (he had no claim to the title of chef then) efforts, continually burned the food, and sent repulsive odors throughout the vessel. A bath with even cold salt water was a luxury, the limited-fresh water supply of the ship being used only for cooking and drinking purposes.

The application of steam to the driving of

IT is Mr. Hickman's belief that modern vessels of tomorrow will be so designed that it will be unnecessary to take the steam lines from the engine room. Instead electricity will perform the duties formerly assigned to steam and will be used for cooking, heating and water heating throughout the vessel. In this article he tells of the installations that have been made on some of the Matson line boats.

vessels did much for the advancement of navigation. Without this source of power present day ocean transportation would not be in the advanced state that it enjoys. Steam, whether it be applied directly to the propelling machinery or in a roundabout means has made speedy navigation possible, but electricity must now be acknowledged to be the leading factor in the development of comfort and safety aboard ship.

Steam must of course be given the credit for initially developing the electrical energy, but the latter form of power, because of its flexibility and adaptability to conditions, is displacing other forms of energy in the processes which require the finest control and which deliver the most comfort to the passenger.

Today probably one of the most interesting parts of a vessel is the galley. It is there that electrical men have for some time been endeavoring to install electrical equipment of the most modern nature. Marine architects have been considering such installations for some time, but it has been only in the last few years that any installations of a complete nature have been made. The Leviathan, in being reconditioned, has had one of her restaurant galleys electrified, but the main galley has not been so treated.

United States Navy vessels have had their galleys electrified, as have a number of Standard Oil tankers. United States Army dredges, which are operated by electricity, have had electrical installations placed in their galleys and a few of the trans-Atlantic liners also have electrical installations in at least one of their galleys.

On the Pacific Coast there are a few vessels on which part of the galley equipment is electrical. The Southern Pacific automobile ferry, Shasta, operating on San Francisco Bay, has an electric range and grill, and the S.S. Napa Valley of the Monticello Steamship Company, plying between San Francisco and Vallejo, has a partial electrical installation in its galley.

Matsonia Leads the Way for Passenger Vessels

Due to the farsightedness of the officials of the Matson Navigation Company who worked in conjunction with the Pacific States Electric Company, the first Pacific Coast liner to have its main passenger and crew galley completely electrified is the Matsonia. In this vessel, which plies between San Francisco and the Hawaiian Islands, there are three marine type, hotel ranges, a multiple deck bake oven,

three electric grills and four seven-slice toasters all manufactured by the Edison Electric Appliance Company. The ranges are of the 110-120-volt type and are furnished with direct current. There are four 4,000-watt grids on the surface of each range, and two 3,000-watt elements constituting the top and bottom elements are placed in each of the ovens. Each of the elements is controlled by a three-heat switch, permitting a control of heat both on the range surface and in the oven that has been a revelation to the chef. The three griddles are being used for breakfast service in the preparation of hotcakes and here the electrical method has triumphed by permitting this class of cooking to be done in a place removed from the main galley. The three electric ranges have replaced six oil ranges.

The bake oven is an Edison No. 200 three deck type, representing a connected load of 9 kw. The oven capacity is 60 one-pound loaves per bake or accommodation for six standard 18 x 26-in. roll pans. Each deck is of course tiled and heated from both top and bottom. Thermometers register the temperature of each deck separately and three-heat switches on each element provide a simple means of accurate heat control.

The Matsonia's Generating Equipment

To provide the necessary generating equipment to carry the load which at its peak is between 900 and 950 amp. a new turbo-generator was installed in the Matsonia. This equipment consists of one DeLaval geared turbine operating at 5,840 r.p.m. driving a 125-kw., 125-volt direct current Western Electric Company generator at the rate of 1,050 r.p.m. There are also one 50-kw., 125-volt, 300 r.p.m. General Electric Company, engine driven generator and a 30-kw., 125-volt, 300 r.p.m. engine driven generator manufactured by the same company. To reduce the heat in the generator room and thus guard against temperature rise of the generator a powerful blower system which supplies 7,500 cu. ft. of air per minute, has been installed there.

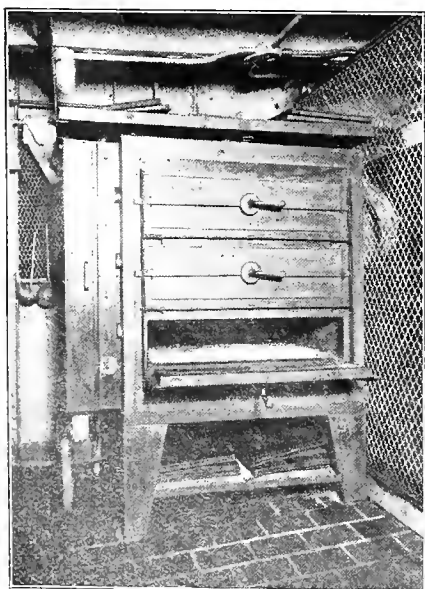
The large turbine driven unit carries the full load at sea and the smaller units are used only when the vessel is in port and the load is low. The turbine uses steam at 225 lb. inlet pressure and exhausts at about 10 lb. back pressure, directly into the low pressure receiver pipe of the main engine which drives the propelling machinery of the ship. This effects a material saving in fuel oil in that in addition to the elimination of the burning of oil in the galley, it also assists in the driving of the vessel.

The present generating capacity is approximately 200 kw. and the recorded load at its peak reaches 110 kw. The average load during the day-time is 85 kw.

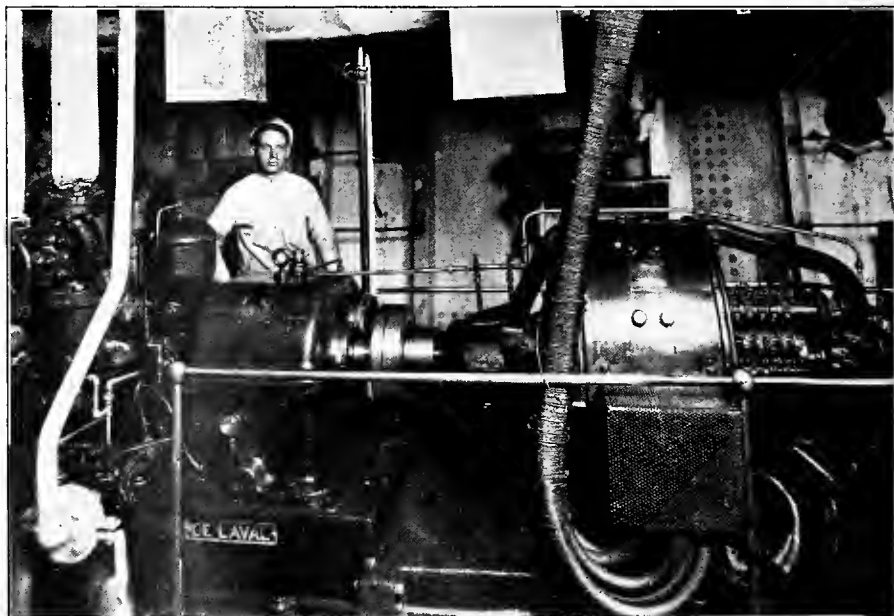
While no actual figure can be obtained which will show the saving that has been effected by the use of the electrical equipment in the galley, because of the many conditions which enter into the amount of oil that is consumed in a voyage, it is certain that a material saving will be noticed when the operation is considered over a period of a year. A saving can be noticed in the food that is served to the passengers, however, because of the smaller shrinkage that occurs while food is cooked electrically. This is particularly noticeable in the baking of bread and the roasting of meats.

The electric ranges have been found to be extremely speedy in their operation. The chef, who previous to the time that the electrical equipment was installed on the vessel had made 49 trips on her, declared, after his first trip on which he used the equipment, that they were the most efficient ranges that he had ever used. As an example of the speed of the ranges he showed by actual demonstrations that fresh bread could be toasted on both sides in exactly three minutes.

The installation has also become exceedingly popular with the galley crew because of the fact that the temperature has been considerably reduced since the electrical equipment was installed. The trip to the Hawaiian Islands is made largely through trop-



All bread and pastry for passengers on the Matsonia is baked in this oven.



A DeLaval turbine and reduction gear is used to drive the 125-kw. Western Electric direct current generator on the Matsonia.

ical and semi-tropical waters, the temperature at sea ranging around 80 deg. F. on deck. Before the electric ranges and bake ovens were installed, despite the fact that a forced ventilation system was employed, the temperature in the galley would average around 140 deg. F. On the first trip that the ranges were used the thermometer readings showed that the average temperature was only 112 deg. F.



The chef on the Matsonia is completely satisfied with the bank of electric ranges that has been installed in his galley.

Passengers have also been made more comfortable in their staterooms because of the use of electricity on the Matson line boats. Each of the vessels operating between San Francisco and Honolulu is equipped with about 50 air heaters, most of which are of the convection type. These heaters are kept by the electrician of each vessel and are delivered to passengers as they are requested. The heaters are of the portable type and are rated at 660 watts.

A trial installation of water heaters was recently made on the company's vessel, S.S. Maui. The water heater is one of a type manufactured by W. Wesley Hicks, of San Francisco, and is attached to two hot water faucets in one of the men's lavatories. The heater consists of a small copper boiler so thoroughly insulated that the radiation loss is negligible; it is provided with a self-contained thermostat which maintains the temperature of the water at about 170 deg. F. The principal advantages of this heater are that it overcomes the objectionably large and sudden demand characteristics of faucet heaters of sufficient capacity to render good service, and reduces the cost of serving and wiring.

A 990-watt heater was used at first and this was found to supply more than enough water for the two faucets, and a 660-watt element was substituted. This element delivered an entirely satisfactory supply of hot water and it is the intention to hook the heater up to four faucets to determine if one heater will carry the load. Ultimate development of the principle of heating water at the point of its use, by means of small and medium sized electric heaters, will no doubt mean that 30 or 50-gal. heaters will be installed where three or four bathtubs and six or eight lavatory faucets can be reached. This will eliminate the necessity of leading the steam lines out of the engine room for the purpose of heating water

for toilet purposes. Air heaters for use in state rooms will solve the problem of heating the vessel and there will be no necessity of taking steam lines from the engine room for that purpose.

The Electrification of Auxiliary Equipment

Other vessels operating on the Pacific Coast have also seen the advantages of using electricity, particularly in connection with the operating of auxiliary equipment. Until recently ship operators and engineers in charge of construction have been using a small amount of comparatively low voltage direct current for lighting purposes, but recently the Luckenbach Steamship Company, Inc., operating vessels between the east and west coast of the United States, in reconditioning three of its vessels, installed in each two turbo-alternators furnishing 220-volt, three-phase, 60-cycle current. All of the principal auxiliary equipment, such as the main circulating, main feed, fire, sanitary, condensate and other pumps



Wesix water heater attached to two hot water faucets in the men's lavatory on the S.S. Maui.

are operated with this current. The lighting circuits are taken off of a transformer which steps the current down to 115 volts. This is an advance worthy of note and it seems that it will not be long before many similar installations are made aboard ship.

The Matson Navigation Company is contemplating building a new vessel which will be put on the run between San Francisco and Honolulu. This vessel will be equipped with all of the latest comfort-making and safety devices and will be designed to cover the 2,100-mile distance in four days. Electrical equipment will play a large part in making this ship one of the most modern on the Pacific Coast and the installations that have been placed on the present Matson boats were made primarily with the intention of securing accurate information regarding their advantages. The results have been found so satisfactory that no doubt a larger amount of equipment will be installed in the new boat than has ever been placed in any passenger vessel now in operation anywhere.

Advertising for the Central Station

By Theodore Watson

Service Manager, Johnston-Ayres Company,
Advertising Specialists, San Francisco, California

ADVERTISING can be likened to electricity. It is a force, intangible, potent, capable of performing prodigious and useful work when skillfully and intelligently handled, but fatal to the one who attempts to apply such a force in a meddling manner.

In the case of electricity, however, we deal with curves, pole lines, conduits, tools, material, and algebraic formulas, while with advertising we deal more with the human equation, or the general public interest. In its application to the development of the central station, advertising must be directed along two parallel lines each performing at its respective terminal a different work but performing this work simultaneously. One of these is improved public relations and the other, an increased sale of the station's chief commodity.

Upon the efficiency of the engineering—how skillfully the entire undertaking is made to co-ordinate with surrounding influences and modifying factors—depends the effective utilization of the energy. Again—too little energy put through the wires won't turn the wheels fast enough; too much, causes trouble somewhere along the line.

As a class, the central stations have employed too little of the force of advertising in the drive for progress and development. In fact, from some quarters advertising in any quantity has been questioned. It has been argued, especially in cases of virtual monopoly, that advertising is a waste of money because all the business belongs to the utility anyway.

But, where is the central station with lines filled, with peaks leveled, and valleys raised, with consumers all satisfied, and a community 100 per cent behind the utility! None exists of which it can be said "there is nothing to correct,—no lesson to teach our people and our politicians,—no phase of electric service not fully understood and utilized by all of our consumers,—no new uses for current to be exploited."

Until all the homes, and shops, and factories in the country have been electrified, there can be no excuse for a let-up in central station advertising.

The Public Utilities Advertising Association has gathered some pertinent statistics on utilities advertising. In a statement by the president of the association, the surprising assertion is made that the utilities, including central stations, are investing in advertising an average of only $\frac{1}{4}$ of 1 per cent of annual gross business. The least that should be set

THIS is the first of a series of articles by Mr. Watson, who has specialized on corporation advertising. Any commodity—be it service, stock or merchandise—can be sold in increased amount by properly directed publicity. Mr. Watson brings out many points in his series which should interest every member of the electrical industry and which should serve to guide in the formulation of advertising plans by merchandisers as well as central stations.

aside for business-building advertising is 2 per cent. Other industries invest on an average of 5 to 7 per cent while some go as high as 20 per cent. As the president of the Public Utilities Advertising Association says, "It does look as if some of us haven't acquired a very keen sense of business proportion."

Any successful manufacturer will advance many reasons why he should advertise—reasons based on sound economics. But, com-

pared with the central station, the problems of conducting the average business are simple, chiefly because the factor of public "good-will" looms so large across the central station manager's vision.

Referring once more to the statements of the Public Utilities Advertising Association, there are given among many, the following reasons why utilities should adopt and adhere to strong advertising programs:

"We have a \$17,000,000,000 investment to protect.

"This gigantic investment is subject to attack and harassment by all sorts of regulatory and legislative bodies, by the general public and the newspapers to a greater extent than any large and legitimate business in the country.

"We are far in the rear of every other modern business in the field of advertising.

"We need the greater good-will of our 33,000,000 customers.

"Our exclusive business is salesmanship in its broadest application, and every form of salesmanship needs the fifty-fifty push and punch of advertising.

"The greater the demand for any product, the less will be the ratio of production cost, with proportionately greater economy of operation.

"It is the specific function of advertising to create consumer demand and consumer preference."

There is a valuable byproduct of central station advertising not included in the above splendid arguments in favor of adequate advertising. It is the effect that such advertising has on the company's own organization.

One of the central station manager's greatest concerns is the training of his personnel. The burden is the greater because of constant and manifold contact with the public on the part of the central station.

Good advertising can do wonders to put the organization on its toes—to enthuse, to educate, to engender pride in each individual for his job and his company, and his responsibility in nursing public good-will. The benefit of this, of course, is reflected in a more cordial relationship between employees and the public.



Safe-No Flame, No Fumes -Cook Electrically

Ever if electric cooking had accomplished nothing else, the elimination of an open flame would have saved a space in every kitchen.

But in addition, it operates as no other range can compare with a minimum of attention—no fuel or ashes, no fires to watch. The uniform, controlled electric heat preserves the full flavor and food value of all meats and vegetables.

Think how you will enjoy adding kitchen-free hours to your leisure and recreation every day when an actual saving of household income. The average monthly bill for electric cooking is only \$2.50, for the average family of four.

See a sales agent about our low rates for electric cooking. So an electric range at your dealer's today can pay for itself in a few months.

THE CALIFORNIA OREGON POWER COMPANY
We have a large stock of electric ranges and stoves in stock and are willing to deliver them to your home at a special price.

Ad 10-A
3 col. x 8 in.
Rogue River Division

THE SPIRIT

that is above price

A NATION is great through the spirit of its people; an industrial organization serves and grows through the spirit of its personnel.

You like to do business with this or that institution because of the courteous spirit, the friendly "personality" it gives forth.

We believe the men and women who make up the Puget Sound Power and Light Company with its subordinate companies reflect a most unusual esprit de corps. They are one big, congenial family with the common purpose of giving to the public the best there is in them.

True to themselves and their organization, they are true to the wide world with which they come in contact.

The great majority have more than a perfunctory interest in the service they render—for they are numbered among the owners of the company. As security holders they share in the earnings. Fully 25,000 men and women, including two-thirds of the officers and employees, own the outstanding stocks, bonds and other securities of the Puget Sound Power and Light Company.

The splendid spirit of the organization manifests itself in play.

Thus comes "The Spirit That Is Above Price."

Wouldn't you, too, like to be identified with such a faculty as this? The way is open, through ownership of securities in the Puget Sound Power and Light Company. Just now Preferred Stock is available at a market price to net better than 7% on the investment. Consult the nearest office of the company, any of its employees, or write for full information to Puget Sound Power and Light Security Company, Electric Bldg., Seattle.

Puget Sound Power & Light Company



Bake---Electrically

From the day you start using an electric range you'll make the most delicious bread, cake and pies you ever baked, because it's so easy to get uniform controlled heat. You'll get better broiled results too, as well as better boiled, stewed and broiled dishes.

Think of the steps saved when you have no untidy wood or coal fire to tend. Think of the convenience of setting the timer by the same clock, so that the food is ready to be picked up and served on the spot.

Hundreds and hundreds of The California Oregon Power Company subscribers are using electric ranges and so winter. This company gives a special cooking rate to you that the average bill for both cooking and lighting together is often as low as the cost of other types of fuel.

See our local office today about the favorable rates for electric cooking. We have many other practical advantages and economies you'll enjoy when you get a special cooking rate. You can get one on easy payments and have it installed immediately.

THE CALIFORNIA OREGON POWER COMPANY

Ad 5
3 col. x 8 in.



Contractors and Builders of Homes, CORRECT WIRING WILL HELP YOU SELL

Experience has taught you that it is the modern home—the complete home with something distinctive about it—which sells most readily and brings you the best profit.

Consideration of the rapidly growing popularity of electrical appliances will convince you that a home to be modern a year or two from now, it must be correctly wired for use of the larger electrical appliances, such as Electric Range, Water Heater and Air Heater.

Any one interested in home building is cordially invited to call at any office of this company and discuss the need for correct wiring in modern homes. Specifications and advice will be gladly given without charge.

Coast Counties Gas and Electric Company
Santa Cruz • Wainwright • Hollister • Gilroy

The "First Preferred Stock" of this Company is a safe and attractive investment. Ask about its security features and rate of earning at any office of this Company.

JOHNSTON, AVALLE COMPANY
1000 Market Street
San Francisco, California
(Representatives for Coast Counties Gas and Electric Company)



Suppose you Shopped for Electricity

SUPPOSE Electricity was sold by the yard, or by the pound, or by the yard.

Suppose you had to go to a store for it, and watch the scales while it was being weighed.

You would know then, of course, exactly how much Electricity you were getting, and exactly what it was going to cost.

It's easier than that to know how much Electricity you use

The Electric Meter in your home or place of business is so remarkably accurate and carefully tested to measure exactly the amount of Energy you use. The Kilowatt Hour is the unit of measurement for Electricity, as yard, foot and pound are for other commodities.

In reading your meter frequently, or at regular intervals, you can know more about the amount of Electricity you use than if you bought it in a store.

PACIFIC GAS AND ELECTRIC COMPANY
General Office: 445 Sutter Street, San Francisco
P.G. and E.
"PACIFIC SERVICE"
A Company organized to secure, produce and distribute electric energy



To Entertain Charmingly —use Electric Appliances

What a real pleasure it is to entertain when smart Electric Appliances can be used for preparing dainty dishes on the tea wagon or living room table.

Attractive, serviceable Electric Appliances such as Percolators, Grills, Toasters, Waffle Irons, etc., can be used in any room in the house. Here there is a handy convenience outlet. The hostess can serve tasty spreads without having to leave her guests for a half-hour's work alone in the kitchen.

Electric Appliances are convenient in many ways. Ask your dealer for information or apply to any P.G. and E. office.

PACIFIC GAS AND ELECTRIC COMPANY
A California Company serving over 3,000,000 customers in company
P.G. and E.
"PACIFIC SERVICE"

Central station advertising falls naturally into two distinct classes, namely, good-will and sales. The above samples show both types. The central piece of copy is a particularly fine example of the good-will type.

So much for the need concerning a program of advertising for the central station.

Now then, what should determine the course of such a program and how should the amount of the appropriation be arrived at?

In most ways, the building up of a central station's business parallels that of the manufacturer of a product. In the old days, the plan for launching an advertising program was about as follows: first, it was decided that some advertising ought to be done. Then, the question was asked "How much shall we spend?" This having been determined, some sort of program was arranged for spending the money. This was followed by carrying out the program and expending the amount set aside.

Today, the procedure is more like this: First, a study of the concern's selling problems is made to determine what must be accomplished, or what the result must be for the business to go ahead and develop and progress in a more rapid and satisfactory manner. This having been determined, the next task is to answer the question "What must be said to the public and to the trade to bring about the results desired?" Next, comes the preparation of the messages, which is followed by the proper broadcasting, through publications and other means, of these messages. It can be seen, that following this procedure, arriving at a proper amount to be invested in advertising is a simple matter. To sum up—learn the task to be performed, provide the means to accomplish this task, after which the cost will be self-evident.

It will be noted that the difference between these two methods is the difference between guesswork and the scientific application of ascertained governing facts. In one case the objective is vague—the outcome doubtful or entirely speculative. In the other, the objective is already in sight at the start, and each step of the journey logically and accurately measured off and established.

That is precisely the procedure for the central station to follow. The station has a product to sell. It has a definite market to reach. Its problem—like that of the manufacturer—is to dispose of its product to this market in ever-increasing volume.

Surveying that market and blue-printing a plan to effectively cover it is just as much of an engineering job and follows just as scientific lines as the laying out of a distributive system for the station. The advertising appropriation is then accurately gaged to perform the task assigned and to reach the objective determined.

That is the common sense method for central stations to follow in answering the question of "How much for advertising?" That this method has not been adopted more generally accounts for the low average percentage of gross earnings set aside for advertising by utilities as a class.

Some individual utilities do meet their requirements. If I may be allowed to again quote from the statements of the president of the Public Utilities Advertising Association:

"The selling of public service—essential and indispensable public service, if you please—is known, by experience and test, to respond as rapidly and in as great a measure to

judicious advertising as the selling of any legitimate merchandisable commodity.

"The demand for any worthy product—service, security or commodity—can be created and stimulated by means of advertising.

"Experience shows that public utilities which have adopted definite advertising programs on a budget basis have never abandoned this policy but, on the other hand, have shown a tendency to expand their advertising appropriations, year by year.

"Advertising, properly used, will increase the turn-over for utilities just as it does in other lines of business."

Now, what are the factors which must be considered by the central station in analyzing its advertising and selling problems so that the proper program can be laid out?

Briefly, some of these factors are:

The attitude of the public toward the particular utility.

The attitude of municipal and state administrations.

Proportions of the business to be developed as between industrial and domestic.

Possible cooperation on the part of dealers in electric appliances.

Development of adequate sales and new-business departments.

Whether or not to sell appliances in competition with dealers.

And other factors.

These will be discussed more in detail in the following articles.

Seven Years May Be Needed for the Reconstruction of Japan

That five to seven years will be needed to restore the devastated area in Japan is the estimate that the Commercial Attache at Tokyo has cabled to the Far Eastern Division of the United States Department of Commerce. Greatly increased activity throughout the Empire should result from the full employment of labor during that period, according to the same report. This activity will be reflected in foreign purchases of building and construction materials and also in increased purchasing power of the masses.

Plans and specifications for the rebuilding of the affected area are being drawn up at present and it is expected that they will be completed in time for them to be presented to the Diet when it convenes Nov. 10. At present no permanent construction is being permitted.

The shipbuilding and electrical industries were seriously damaged by the earthquake and the demand for electrical equipment is heavy at present. It is stated that the government will probably make direct purchases of lumber and steel products in the United States. Steel framed reinforced concrete buildings are generally conceded to be the best suited for business buildings in Japan and a heavy demand for structural steel is anticipated. Demand for machinery to replace that destroyed in factories is heavy and the demand for sawmill equipment is especially active.

Dehydration of Fruit in California

By R. C. Griffin

Power Sales Engineer, Pacific Gas and Electric Company
San Francisco, California

CALIFORNIA has long been known for its wide variety of delicious fruits. No other section of the entire United States produces such a varied crop of marketable fruits and the area in California that is devoted to fruit growing is increasing each year. More diversified crops are being planted and the distribution throughout the state of crops heretofore grown only in certain sections is each year becoming more noticeable. This is of great moment in that it reduces largely the element of entire failure of crop. Owing to variance in weather conditions, insect and other pests and lack of irrigation supply the growers have at times suffered through the fact that they were individually dependent upon only one kind of fruit crop and an unfavorable crop condition has seriously retarded their development. Under the newer condition of planting more than one kind of fruit this possibility will be largely eliminated and the entire fruit growing industry should be in a more stable position.

A very large part of the fresh fruit crop never reaches the market in its original state. This is necessarily true on account of the nature and characteristics of the fruit itself. Figs, for example, are extremely perishable and the loss to dealers through spoilage is very high. For this reason fresh figs are a liability to a dealer and not an asset. Melons are easily bruised and when so injured are quickly spoiled. This same condition obtains in the case of prunes, grapes and other fruits. For this reason it is necessary to so treat many fruits as to permit of their being kept for long periods of time and of being handled without damage. Hence, the matter of fruit preservation has long been the subject of considerable study. Various methods have been tried out with the result that dehydration has been found to be the most feasible and practical process that can be devised.

Dehydration is no new idea, having been practiced for several hundreds of years. It is said to be the oldest method of food preservation known to the human race. However, dehydration methods have changed with time until now the process is the result of much scientific study and application. The extensive development of the canning industry has interfered somewhat until recently with the advance of dehydration practice but since the world war increased interest has been aroused and there are now many dehydration plants in operation on the Pacific Coast.

An interesting comparison between the laid

THE dehydration of fruit is eliminating the weather hazard and is improving the crop results for many California growers. Electrically operated dehydration plants are in successful operation and offer many advantages, some of which Mr. Griffin touches upon in this article.

down cost of canned and dehydrated foods is in the case of tomatoes shipped from California to France. Canned tomatoes costing \$2.60 in California would cost \$7 laid down in Havre; the equivalent amount of dried tomatoes selling in California for 26c. per lb. would cost 40.5c. in France, a saving of \$6.595 or 94 per cent. This, to be sure, is an extreme case, as tomatoes are 94 per cent water, yet it serves to illustrate the savings which can be made in every line where dried products can be made to replace canned goods.

The production of dried fruits in California is increasing and is a decided insurance against loss to growers due to conditions beyond their control. The dried fruit crop at the present time is divided about as follows: prunes, 56.8 per cent; peaches, 23.8 per cent; apricots, 13.8 per cent; apples, 3.1 per cent; pears and other fruits, 2.5 per cent.

The basic principle of dehydration is the reduction of moisture to the point where bacteria, yeasts and molds—the chief agents of spoilage—are unable to grow and destroy. There are two separate and essential elements involved in the science of dehydration, namely, heating engineering and chemical engineering, and for the fiscal year 1920, so important is the subject considered by the national government, a federal appropriation was made amounting to \$50,000 for the study and advancement of the art. This appropriation was possibly influenced by the enormous losses occurring during the month of September, 1918, when early rains damaged the prune crop to such an extent that it was largely a total loss. One grower alone in California suffered a loss of \$100,000 all of which could have been prevented by dehydration. This disaster to the prune crop caused a very decided movement towards the adoption of dehydration methods and an intensive study of ways and means.

After the year's work of cultivating, pruning, spraying and all the various branches of growing activity has passed comes the fruit drying season. This is generally during the period of unsettled weather conditions and drying is accompanied by an exceptional hazard. Where drying is done by the sun, out of doors, it is a gamble with the weather, generally with the odds against the grower. The dehydrator takes away this hazard and reduces by a considerable amount the element of loss. It also provides a uniform product which in many cases, because of uniformity, is found to be of superior quality to sun-dried fruit. As an example of this is

the case of prunes grown in Colusa where sun-dried prunes were never given the "Sun-sweet" standard but as soon as dehydration was used the fruit was granted this rating.

The Technic of Dehydration

There are many different types of dehydrator but all of the modern plants use a building or tunnel so arranged as to permit of the placing of the fruit in a drying chamber and to further allow the forcing of a draft of heated air over the fruit. Control devices are also employed in order to maintain a constant temperature and accurate regulation of the humidity. The technic of dehydration is extremely interesting although not complicated. It consists merely of passing a current of air over the fruit in such a way as to **gradually** absorb the moisture from the fruit. This process must be gradual in progress for if the air is so dry, or is passed over the fruit so quickly that the moisture is taken from the surface more rapidly than it can be diffused to the surface from the interior of the fruit, a hard shell is formed on the exterior which is known as "case hardening." Case hardening can be avoided only by regulating the humidity of the air within the dehydrator during the drying process. This is most readily accomplished by recirculation of the air which has already passed over the fruit and by exhausting a part of this heated air and adding additional air to replace that which has been exhausted. The air is circulated by means of a large blower which is electrically driven. Dehydrators are generally equipped with approximately 1 hp. of motor capacity for each fresh ton capacity of fruit. Installations usually average about 10 fresh tons capacity per twenty-four hours and the average cost of a dehydrator of this capacity is approximately \$6,000.

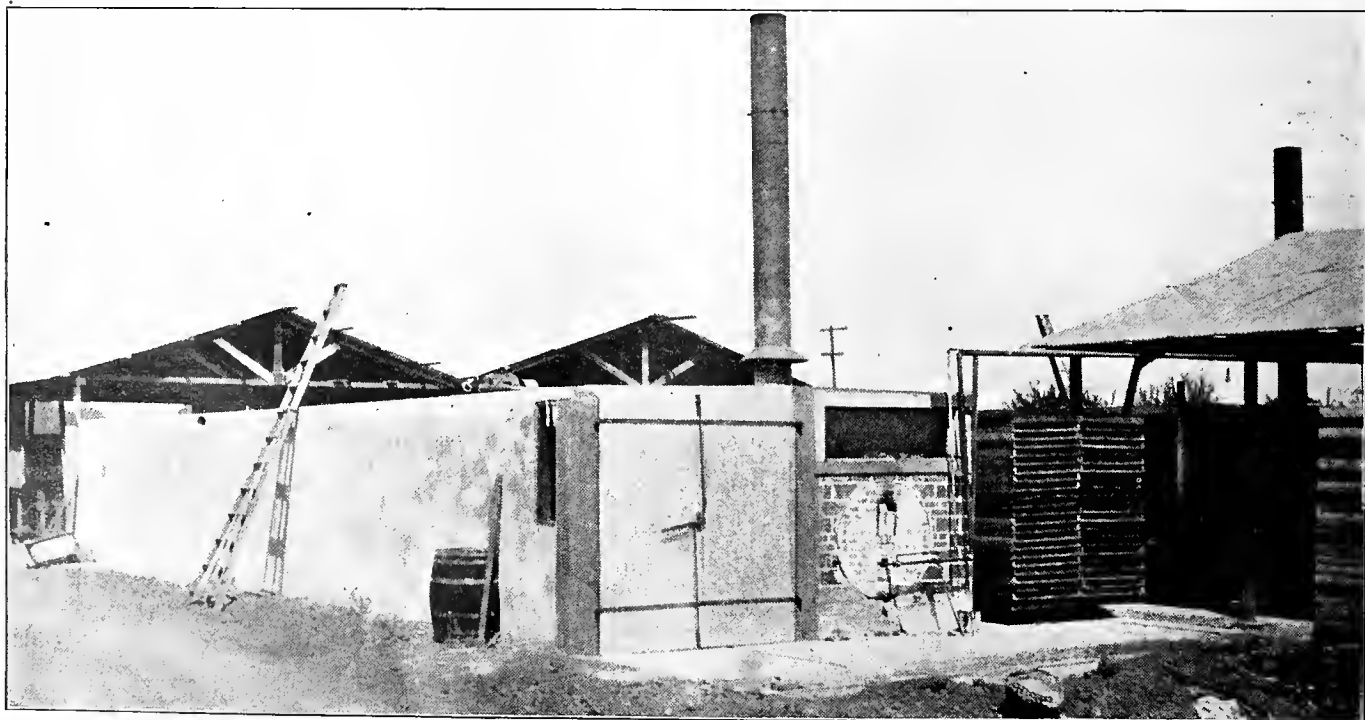
A typical example of fruit dehydration is that of the prune. Air is passed over the fruit in two

directions; in the direction of fruit travel and in the counter direction. When air is forced in the direction opposite to fruit travel it is known as the "counter-current" system and when the air travels with the fruit is called the "parallel-current" system. A combination of these two methods has been found to give the best results.

The dehydrator insures positive and uniform drying under all weather conditions and produces a much cleaner product than can otherwise be obtained. In addition, the land area which would be necessary for the dry yard is available for the planting of trees and can therefore be made fully productive as a dehydrator requires little ground space. This is an important factor from the point of view of real estate and taxes and also because of the possible increase in revenue which it makes possible through increased production.

Does Dehydration Pay?

It is frequently asked whether or not dehydration pays. As an example of the profit accruing from this method is the case of one grower who last year had an exceedingly heavy crop, considerably beyond the capacity of his dehydrator and who was obliged to dry some 3,000 trays in the sun. The fruit being selected at random was presumably of the same quality as that which was dehydrated. The dehydrated fruit averaged 41's and was classed as 30-40 while the sun dried fruit averaged 45's and was graded as 40-50. Last year the 30-40 grade commanded a premium of \$30 per ton over the 40-50 grade and this fruit showed an increase in weight of about 9 per cent, which increase in weight, at the prevailing rate of \$200 per ton, brought an additional return of \$18 per ton. It will be readily seen that the increased return from the dehydrated fruit more than paid for the cost of dehydration, which averages about \$8.73 per ton, and in addition the fruit was



Dehydrator on a Santa Clara Valley prune ranch. For each ton-capacity, these plants are equipped with 1 hp. in motors.

of a higher grade. This seems to be a very conclusive answer to the question above cited.

During the season of 1922 there were in California 156 dehydration plants and it is believed that the 1923 season saw at least one hundred additional plants in operation. This seems a very conservative expectation when the figures for 1921 and 1922 are compared, for during the former year 7,366 fresh tons of prunes alone were dehydrated in 48 plants while in the latter year 33,389 fresh tons were dried in 126 plants—an increase of 162 per cent in number of plants and of 353 per cent in number of fresh tons of fruit.

Dehydrating Fruits and Vegetables

Electricity will be used this year for the first time in the dehydration of fruits and vegetables in California. The Anderson-Barngrover Company, near Stockton, have erected the first commercial electric dehydrator and will handle all their fruit and nuts in this manner. Electricity will be used in addition to operate the motors for driving the air over the fruit and for illumination at night, thus permitting 24-hr. operation if desired.

This is only one of the many applications of electricity to farm and ranch purposes which are rapidly being adopted by progressive ranchers. The

advantages of electricity for heating and for other purposes are too numerous to mention in detail but include economy of installation; reduced labor costs; decreased fire hazard with attendant lowered insurance rates; increased land area available for other purposes and absolute control where desired. This control may be extended to the automatic operation of feeding, motors and other apparatus. Labor costs are constantly before the producer and electricity affords a means of their reduction.

Automatic control is another very essential feature of electric operation. In the case of walnuts, for example, the temperature must not exceed 120 deg. F. or the oil of the nuts will become rancid and the product will be spoiled. For such low temperatures as required for the dehydration of nuts the exact temperature control made possible by electric equipment is ideal. Walnut dehydrators will be constructed in units of approximately 5 tons each and electric equipment can be very readily adapted to this method of unit construction. With the rapid adoption of this method of drying fruits, nuts and vegetables there is opened a vast market for the sale of electric motors and motor equipment, blower equipment, heating apparatus, control devices and wiring supplies.

Building Up a Business Without Capital

ONE of the great financiers of the country, when asked recently as to what kind of business he would advise a young man to enter, replied "A repeat business." By that he meant the sale of some product which brought the customer back into the store periodically. Clothing is such a commodity—so is stationery, so are groceries. Pianos, heavy furniture, works of art, are purchased once for a lifetime.

Electrical appliances, with a few exceptions, come within this latter class. Motors will wear out eventually, of course, and improvements in manufacture will so change the product that the housewife will wish to have the latest model, but in general when the household is supplied with a vacuum cleaner, a washing machine or an electric range, the purchaser does not expect to have to renew these purchases for another ten years at least.

The electrical appliance business, then, labors under a handicap. There are others, as well, which might be enumerated. With the character of a semi-luxury, and in consequence an enforced relatively small turnover, the margins allowed are under those possible in most other lines of merchandise. Rather, in most other lines, the retail price is not fixed, so that the merchant is allowed to set his own figure for resale, and thus his own margin.

As a third item which acts as a handicap, as against other merchandising conditions, the material itself is bulky and requires considerable floor space for its display. Combined with the relatively slow turnover, this means that few electric stores can afford space in the main business district of a large

city. On the other hand, store location is a primary consideration in bringing customers into the store.

What is the answer?

The answer is that it can be done. A. M. Smith of Los Angeles together with his wife, are examples of how it can be done. They accepted all these hindrances and added a few more to them. They started almost entirely without capital, for instance. By managing to mortgage their home and to borrow from the bank they gathered together \$1,000 with which to start their enterprise. On top of this, they regarded an automobile as essential to their work and saddled themselves with the purchase of a machine on the time payment basis. Further, they confined themselves to large appliances exclusively, foregoing the profits and larger turnover of small equipment, starting with vacuum cleaners and adding washing machines and later, electric sewing machines to their line. Their store was located somewhat out of the main section of the business district and they employed no outside salesmen.

And yet in three years' time, they have built their business up from an initial account of \$2,700 with a finance company who was handling their time payment business to some \$220,000 during the past year.

The first reason which anyone must assign for this success is the unalloyed hard work which both Smiths put into their problem. When bank payments must be met and business built up in the early days, it was not unusual for business hours to extend from six o'clock in the morning until ten at night. The second reason, is because they have worked to a

plan, building their success intelligently, using each item of progress as a stone on which to build further. They have analyzed their problem and know why they do what they do.

Here are some of the practical methods used in building up this business:

First of all, Mr. Smith believes in concentrating. In his opinion, the man whose interest is in merchandising, will make only an indifferent contractor, therefore he has confined his business to the selling end completely and left electrical contracting to the specialist in that line. Further, he has not added any of the small appliances to his stock. The character of store must be completely modified if small material is to be handled. Moreover, the type of salesmanship required to sell a washing machine is different from that needed to sell electric lamps. By confining his efforts to larger appliances only, every salesman is selected and trained as a specialist in this field. He is encouraged to study the psychology of his customers and to recognize what type of selling argument will apply to the particular individual he is addressing. He is thoroughly grounded in the operation and principles of the equipment and in the finer shades of salesmanship, a training which is more thorough than that required for the ordinary store salesman.

In line with this same theory, the store employs no outside men. Mr. Smith feels that it is not possible to supervise the salesman in the field in the same way that the work of the man in the store is overseen. He is turned out to carry out in large measure his own ideas, and each one relies on his own methods to bring success. It is thus not possible to stamp the same feeling of uniform treatment and of good-will based upon consistent service which it is possible to build up under the closer organization working within the store itself. Further, the maintenance of the store and the advertising required to keep it up means a burden of overhead on every appliance sold. To add to this the commission which must be paid a salesman in the field pyramids the expense of doing business in a way not sufficiently offset by the increase in turnover.

Store location is a matter of importance. With few repeat orders on account of the limited types of appliances sold and the permanent character of the stock, it becomes necessary to maintain a continuous flow of new people to the store. Mr. Smith does not believe in large store rents. His place of business, therefore, although in the downtown district and not difficult to reach, is not on any of the main business streets. As his store expands and demands a greater space his idea is to move into even more central



Interior view of the A. M. Smith Company store in Los Angeles.



The entire front of the store opens to permit pedestrians to view the interior.

location but to save on ground floor rents, possibly using several floors for the storage of his bulkier stock.

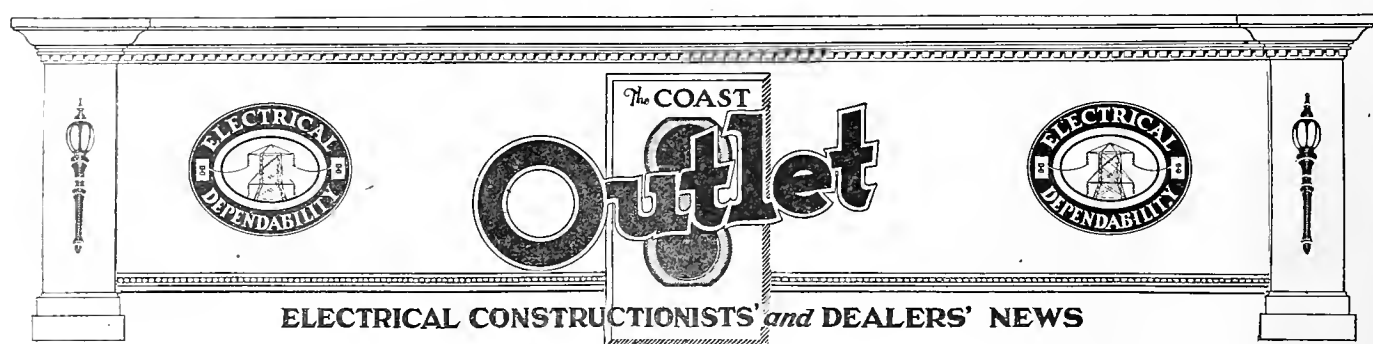
One ingenious idea which has brought many passers-by into his store is the shutter arrangement by which his entire store front can be opened. The pedestrian thus has a much more intimate view of the inside of the store—in fact, he is for the moment, in the store itself and he is much more easily led to drop in to ask questions concerning something in which he is interested. From time to time, demonstrations are held in the front part of the store. With the open store front these have all the attention-compelling qualities of a sidewalk demonstration—and indicate their value by collecting crowds on the sidewalk outside and even in the store itself.

Most of all, Mr. Smith believes in advertising. His copy appears regularly in the local papers—and is, according to his records, responsible for the majority of new custom brought to his doors. This advertising is not based upon cut prices, although generally phrased to read as though a bargain were available for a limited time only. It is rather based upon a fair price and upon attractive time payment terms. An especially small initial payment or a special offer based upon payment within a given period form the basis for most of the bargains offered.

Occasionally, of course, it is possible to pick up some article of stock for a very special price and then this is used as a leader to bring people to the store. As Mr. Smith says, people usually buy the better class of equipment when they come to consider the matter thoroughly and to look into all aspects of the question. Bargain offers bring them into the store—intelligent salesmanship afterwards sells them the standard equipment at the standard price.

And in the matter of time payment business, Mr. Smith is an advocate of the finance company as an assistance to the man who would carry on a large volume of business with a small capital. His own example is an indication of how such a business can grow in a short time. The burden, he is careful to point out, does not fall upon the finance company alone—but this very responsibility of the merchant in his own success is the best guarantee for his not failing. It would be a mistake to present a dealer with a large capital before he had earned it—he would not know how to use it wisely.

After all, the satisfied customer remains the best source of further business. Not only does he come back himself when he wishes something further, in electrical equipment, but he sends his neighbor and his neighbor's neighbor. Good-will is a matter which advances in geometrical progression.



Electrical Construction

By E. Earl Browne

THE lighting of many school buildings is far below the standards prevailing for commercial and industrial establishments. It is conservatively estimated that twenty-five per cent of all school children suffer from defective eyesight. The economic loss resulting from defective vision is not yet fully appreciated but it is coming to be recognized that this loss is of vital importance both to the individual and to the industrial welfare of the country.

One of the contributing factors to defective vision is the poor lighting of class rooms and it is

In most buildings light outlets are spaced symmetrically but with school-rooms the shadows cast by head and hands are important and to eliminate these shadows as far as possible it is necessary to have the maximum light coming slightly forward and from the left, as per Fig. 1.

No lighting unit should come below a line extended from the eye of a student in the rear seat to a point 2 ft. above the blackboard. (See Fig. 2.)

Electric air heating of the school has as many advantages over any other form of heating as the electric light has over any other method of illumi-

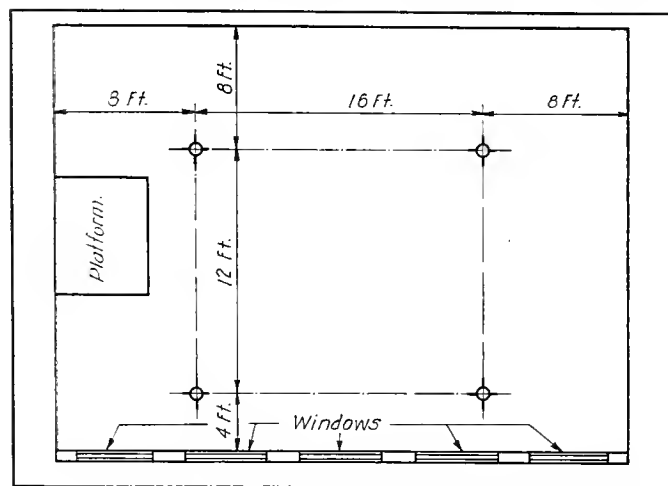


Fig. 1—Showing arrangement of light outlets to give correct illumination.

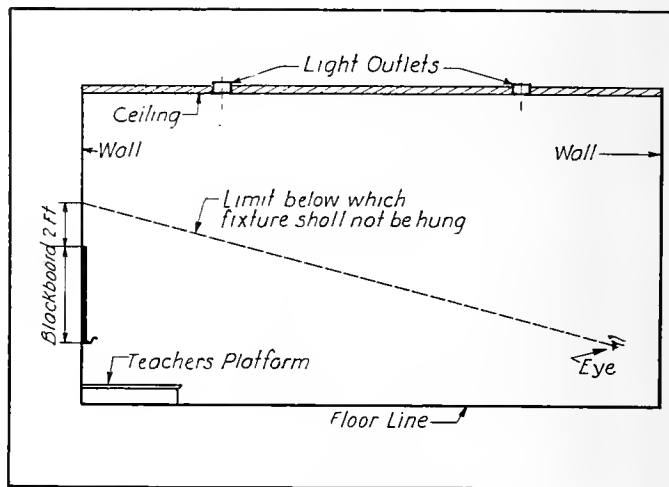


Fig. 2—Cross-section of school room showing height of fixtures.

frequently the case that even state laws are deficient in their requirements in this regard. Many cities are giving closer attention to the matter of illumination, both natural and artificial, but in the rural districts this subject has not generally received sufficient thought.

Artificial lighting is of prime importance and should be carefully planned out in advance of building. Where it has not been so planned steps should be taken by the proper authorities to see that modern and adequate lighting provisions are made.

The modern school is, when properly lighted, an economy, not an expense, for as in any industrial plant it increases the efficiency of the pupils. A foot-candle intensity of 10 on desks in class-rooms should be a fair average, except in laboratories and draughting rooms where discrimination of detail is essential.

The first of course is the cleanliness; the second is the ease of control by thermostats in each class-room as the opening and closing of doors and windows, which subjects the pupils to serious drafts, is entirely unnecessary; the third is the difference in the original cost of the equipment which in schools is used but nine months or less per year, or 200 school days. If steam or hot water systems are installed they require attention in vacation periods to see that water levels are maintained and that all equipment is properly painted to prevent oxidation. The modern electric air heater, when placed as is usual under windows and therefore close to pupils sitting at the desks adjacent to them, is operated as a total convection heater, i.e., it is operated at a black heat instead of a red heat, as in the radiant type, thereby not subjecting the pupils to the excessive heat rays.

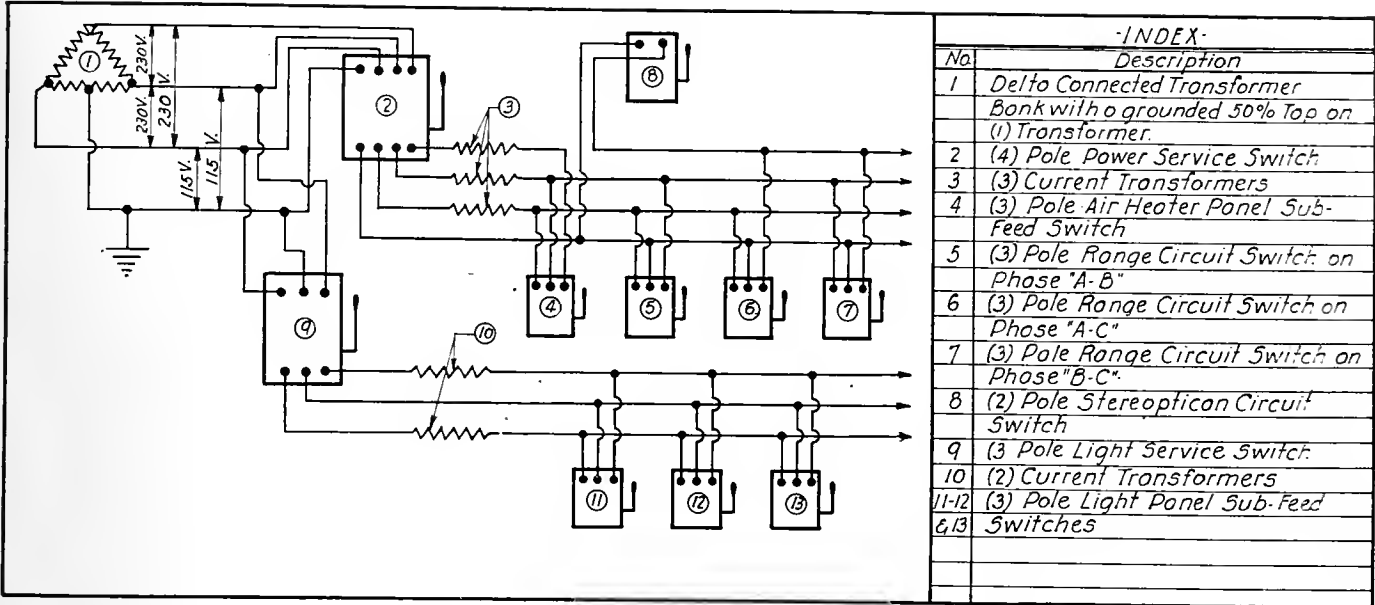


Fig. 3—Wiring diagram for delta connected transformer bank.

Electric air heating has the added advantage of being more flexible than any other system. For example, a room on the northerly side of the building may need heat at a time when a room on the westerly or southerly side would not. With a central heating system it would be necessary to run the plant to heat the single room;—with an electric heating system it is possible to turn on the heaters in the one room and provide comfort at moderate cost. This is of particular importance as teachers and principals often find it necessary to be at school at other than regular school hours and unless comfortable working conditions are provided they are not able to work efficiently.

The question of service metering and distribution is a matter which should be settled with the power company serving, as it is often an advantage to construct a transformer vault on the premises. As all air heating, ranges, motors and all apparatus classed as power would of necessity be on one meter

in order to get advantage of the lowest possible rate, this would leave but the lighting on another meter, as per Figs. 3 and 4.

The disadvantage of the "star" connected transformers with grounded neutral, as per Fig. 3, is that all lamps, ranges, hot plates, etc., would have to be purchased for operation on a nominal voltage of 132. Also the lighting panel boards should have four wire buses to eliminate any chance of an unbalanced condition so far as possible. If, however, the 130-volt apparatus is a large percentage of the total connected load, it would be preferred by the power company, as one larger transformer for this three wire load, as per Fig. 4, would not be necessary.

In addition to the usual public telephone system connected to the principal's office it is essential to have a private telephone system between the classrooms and principal's office, together with a comprehensive system of program, assembly and fire alarm gongs, as well as an electric clock system.

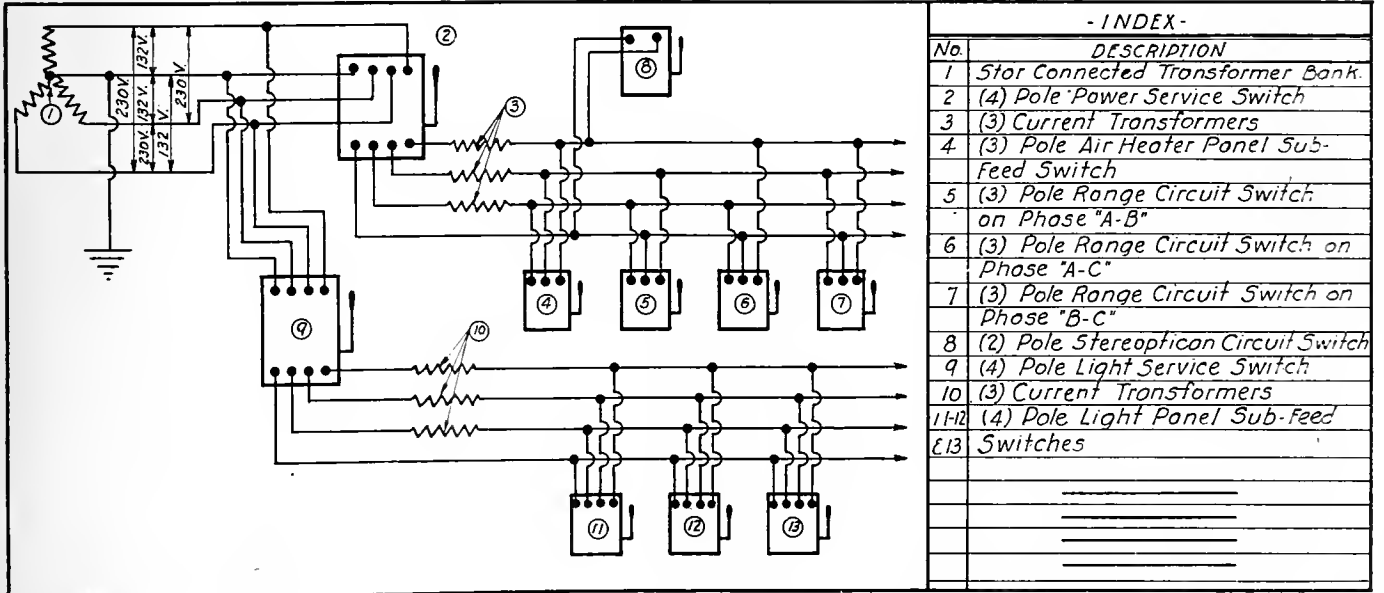


Fig. 4—Wiring diagram for star connected transformer bank.

San Diego Men Plan to Repeat Christmas Campaign

Efforts of Last Year Proved So Successful That Members of the Industry Will Endeavor to Cooperate This Season

"Give Electrical Christmas Gifts," the slogan of electrical men of San Diego, Calif., during the last holiday season, proved so much of an "open sesame" to an unprecedented Christmas season, that in all likelihood a similar campaign will be undertaken this year. The magic that made for success in last year's campaign was the 100 per cent participation of all dealers in electrical materials, brought together and directed by the central station company.

Always an advocate of team work, A. E. Holloway, commercial superintendent of the San Diego Consolidated

prepared and large and small billboard posters were ordered and posted. The local theaters carried a slide with the big wreath of green holly inside of which the slogan, "Give Electrical Christmas Gifts" blazed forth in red letters. Special newspaper advertising of the idea then completed the job.

The San Diego campaign made such an impression that the news of it spread to dealers in Los Angeles and other cities: Through the California Electrical Cooperative Campaign and similar organizations northern electrical men made arrangements for duplicating the San Diego campaign publicity matter for use in other parts of the state. The San Diego printing house doing the work was swamped with orders from Los Angeles and northern cities for additional banners, stickers, and placards.

Electric Power Club Issues Motor Operating Instructions

Recognizing the fact that the life and successful operation of electric motors is dependent not only on proper design and construction but also on proper installation and operation, the Electric Power Club of Cleveland, Ohio, has issued a booklet entitled, "Instructions for the Installation, Operation and Care of Electric Motors and Generators."

This book contains detailed instructions for the proper installation and operation, as well as the care, of electric motors and generators and the subject matter is treated under the following heads:

General Installation
Method of Drive
Operation
Care and Maintenance

In addition to very useful and practical suggestions on installation and operation the book also contains a comprehensive list of standard definitions of terms used in connection with motor work. This book should be of value to every concern that engages in motor

installation or operation and will be furnished on request to the Electric Power Club, 900 B. F. Keith Building, Cleveland, Ohio. The Electric Power Club is composed of the leading electrical manufacturers who have formed an association for the dissemination of information leading to the better and more intelligent application and use of electricity.

Electrical Society Issues Guide to Dealer Merchandising

The Society for Electrical Development, New York, has just issued a booklet entitled "Profitable Practices in Appliance Selling." This book contains a very helpful analysis of the approach to the Christmas merchandising problem as well as general suggestions which are of application throughout the entire year. The book contains many sub-divisions, some of which are as follows:

Analyze your market
Study your prospective competitors
Decide what appliances you will sell
Formulate your sales policy
Window and store displays

The book will be of value to every retailer of electrical merchandise and should be read with great care. The precepts involved are based on years of experience by successful merchandisers and have been compiled and presented for the benefit of the entire retail trade. Distribution of the book is handled from the headquarters of the society at 522 Fifth Avenue, New York City.

The Master Lighting Fixture Company, Seattle, Wash., has the contract for lighting fixtures in the new 10-story Dexter Horton Bank building now under construction.

The Reynolds Electric Company, Chicago, Ill., has published Bulletin No. 41, which gives general information on the maintenance and installation of flashers. The bulletin is designed to be of interest to executives, salesmen, superintendents and repairmen connected with the electric sign industry.



Billboards, similar to the one shown above, were used last year in the Christmas selling campaign.

Gas & Electric Company, called the electrical men of the city together. In this conference was laid out the program to be followed. The central station contributed a starting fund, and each dealer contributed to it what he could. A total of over \$1,000 was raised for the campaign advertising fund.

The individual advertising of all electrical dealers was made to tie in with the campaign slogan, "Give Electrical Christmas Gifts." Beside this there were prepared enough large automobile banners to placard the entire central station's fleet of trucks and cars, besides doing the same for all electrical dealers' machines. Windshield stickers added to this advertising power, and the electrical men themselves wore large buttons imprinted with the slogan emblem.

Schools were visited and the children were given hundreds of small buttons of the same design to wear home to show their parents. Window display layouts were prepared for the dealers, and the Society for Electrical Development sticker stamps were used on all mailing matter. Store placards were



"Sandy" Sanderson, Pacific Coast manager of Bryant Electric Company, tried to tempt "Pete" Daley, sales manager of Majestic Electric Appliance Company, but Pete says that my lady Nicotine has no attractions for him.

Cooperative Sales Plan Evolved by Dealers and Utility

Plans for joining in a cooperative effort to further the use and popularity of electricity for heating and cooking in the home, the apartment and on the farm were discussed at a get-together meeting of the electrical contractor-dealers in the Santa Clara Valley at a meeting held in San Jose, Calif., Oct. 16, 1923. The meeting was attended by a large delegation of San Francisco contractor-dealers.

Preliminary plans were discussed and a temporary organization perfected before the close of the meeting. During the course of the evening George Brouillet addressed the meeting on "Selling Cooking and Heating Load" while C. L. Chamblin spoke on "Selling the Job." C. B. Kenney discussed "Cooperation" and E. E. Browne spoke on "Wiring Standards and Wiring Methods." A. E. Rowe addressed the meeting on "Accomplishments of Association Work." Victor Le Moge, chairman of the State Association of Electrical Contractors and Dealers, told of the plans of that organization to secure 1,000 members during the next year and outlined the benefits to be derived from the use of the association trademark.

John D. Kuster, district manager of the Pacific Gas and Electric Company, and R. R. Robinson of the same company addressed the meeting and assured those present of the cooperation of the central station. Both expressed the hope that the dealers would make plans for joining the drive for a greater use of electricity in the home and on the farm.

The meeting was attended by 14 contractor-dealers from San Jose and other cities in the valley. Before adjournment a temporary organization was effected with Fred Doerr of the Garden City Electric Company, chairman and R. R. Robinson of the Pacific Gas and Electric Company, secretary. Another meeting of the group has been called for the near future when definite plans for accomplishing the program outlined will be arranged.

Included among those from San Francisco who attended the meeting were:

J. W. Redpath, secretary, State Association of Electrical Contractors and Dealers.
C. B. Kenney, Ne Page-McKenny Company.
E. E. Browne, Browne-Langlais Company.
C. L. Chamblin, California Electrical Construction Company.
A. E. Rowe, Garnett Young & Company.
Carl Severin, Severin Electric Company.
Arthur Elkin, secretary, San Francisco Electrical Contractor-Dealers' Association.
Victor Le Moge, Victor Le Moge Company, and chairman, State Association of Electrical Contractors and Dealers.
George Brouillet, F. J. Klimm Company.
Norman Nelson, Enterprise Electric Works.
W. R. Mobley, American Electrical Engineering Company.
O. E. Sholders, Pacific Gas and Electric Company.
Walter Price, California Electrical Cooperative Campaign.
George Smith, Smith Electric Company.
H. C. Reid, H. C. Reid & Company.
Edward Martin, Sterling Electric Company.

The Almvig Electric Company, located at 2810½ Colby Avenue, Everett, Wash., recently opened a new "Torrington Shop" at that address.

A. H. Springer has recently opened a new store at 8937 Santa Monica Boulevard, Sherman, Calif. He will do a general electrical contracting and supply business.

F. W. Rust & Company, Inc., electrical contractors, 218 Columbia Street, Seattle, Wash., have removed from that location to larger and better equipped quarters in the new Campbell building, under construction on the corner of Fourth Avenue and Columbia Street. F. W. Rust, manager, was formerly part owner in the Rainier Electric Company and at one time was connected with the Cascade Fixture Company.

Attractive Merchandise Display Assists in Selling

Too many dealers have overlooked the importance of attractive display of their merchandise. It has long been a familiar sight in electrical stores to see coils of wire, piles of conduit and boxes of tools and fittings piled on the floor or stacked against the wall. No lady likes to enter such a store and many men object to the untidy appearance presented by carelessly thrown construction material. This has beyond doubt been partly responsible for the development of other channels of distribution for electrical merchandise than the electrical dealer. It is, therefore, pleasing to note that some dealers have taken cognizance of the fact that in order to attract trade to their stores they must make those stores appeal to the eye and that to so appeal neatness must be the first principle observed.

One of the most pleasingly arranged stores in central California is that of the Abbott Electric Company, Hanford, Calif. Mr. Abbott has so arranged his stock that it is all readily visible to those who enter the store and, furthermore, it is so placed that any article in which a prospect is interested may be inspected and demonstrated if desired. The stock is all neatly and orderly arranged and the aisles are free from obstructions. There are no evidences of dirt or litter to detract from the value of the appliances and to repel those who enter. The interior woodwork is neatly finished and harmonizes with the decorations while framed copies of national advertising blend in with the general display scheme. Dealers everywhere may well afford to give more thought to the matter of better store arrangement and merchandise display as it has been proved that in no other way may sales assistance be better derived.



The attractively arranged store of the Abbott Electric Company, Hanford, Calif., offers a splendid example for the display of electrical merchandise.

Making Display Booths at Fairs Pay in Sales Return

Many exhibitors of electrical appliances at fairs and other similar occasions have, in the past, been in the habit of displaying as many different lines of merchandise as possible. This has resulted, not in sales, but merely in arousing the curiosity of the visitors who instead of buying became confused by the array of new devices.

Concentration of effort on the sale of a limited variety of electrical merchandise brought decided success to one San Diego, Calif., electrical firm in the recent Farm Bureau county fair held in that city in Balboa park, during September. Four San Diego firms had booths at the fair, the Jennings Electric Company, the Edwards Electric Company, the Independent Electric Company, and the Southern Electric Company, which firm had three booths.

"We always go in for these fairs intensively," said Carl Heilbron, general manager of the latter concern. "We try more to promote prospects than to do anything else. We do not shoot in the air by getting together a lot of electrical goods so that the visitors merely go through the booth to see what the latest thing is. We have found that concentration of one booth to the display and sale of one article pays best. There were enough sales made from the Hoover sweeper booth alone to justify the cost of the exhibit, aside from the list of prospects it gave us."

This concern had one booth devoted to the Hoover sweeper, another to the Eureka sweeper, and one to the Maytag washer and Westinghouse-Free sewing machine. Another feature which aided in the program was that a "Dollar Down Sale" was run in connection with the Fair week. Acceptance of a dollar as the initial payment on household electrical apparatus proved a great selling factor.

W. H. Lewis and A. B. Streeter have opened a new electrical contracting and supply store in Arcadia, Calif., under the name of The Independent Electric Company. The new company starts in with the contract for wiring and fixtures for 87 houses being erected by the McNulty Company in the new town of Temple, Calif.

JOBBER, DEALER AND SALES AGENT



Will You Get Your Share of the Christmas Trade?

**Window Displays, Advertising Campaigns, Cooperative Movements
Aid Dealers in Selling Electrical Christmas Gifts**

To the small boy the coming of Christmas means the arrival of numerous toys and to his mother and father it means the purchasing of these toys from some merchandiser who handles the articles that the boy desires. The housewife looks forward to Christmas with the feeling that she may be lucky and receive some gifts which will make her work easier and her home more livable.

To the electrical dealer this all means more business, provided he makes the necessary preparations to attract the trade to his store. From the electric toy to the automatic electric range the dealer can supply the demands of his customers. With a well thought out advertising campaign backed up by an attractive series of window displays and a well designed store interior, there is no reason why a large volume of Christmas business cannot be obtained.

The Christmas buying season has meant much more to the electrical dealer during the past few years than it ever did before. One of the reasons for this is that cooperative organizations of men engaged in the electrical industry have been exceedingly active in their efforts to increase the sales of electrical appliances. For a considerable number of years, the Society for Electrical Development, Inc., has been preparing literature and sales helps which no doubt have done much to place the advantages of electrical appliances as Christmas gifts, before the eyes of the buying public and at the same time, local cooperative organizations have aided immensely in the campaigns to develop the desire to present electrical Christmas gifts.

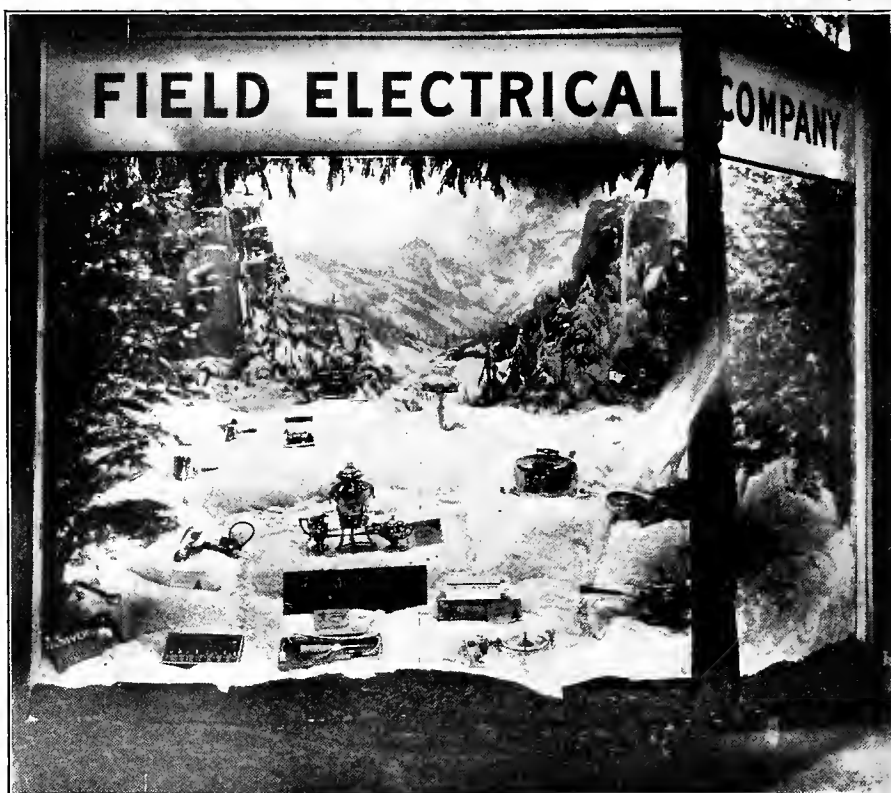
The activities of electrical dealers themselves, must of course, not be discounted, as these men have through consistent advertising increased their Christmas business by a large amount. Cooperative advertising campaigns, slogans, and the countless other sales-producing mediums would be of no avail, if the individual dealers did not follow this work up with personal solicitation of their trade.

Christmas offers to the electrical dealer an excellent opportunity to engage in an intensive sales campaign. The desire to buy is placed in the mind of the public by the tradition that

everyone gives to his friends on Christmas Day. Thus the first step in the making of the sale is made for all merchandisers. The next step, that of making the desire to purchase a particular merchandiser's product, must of course be made by the dealer. The individual through his own sales effort is responsible for completing the transaction with the customer.

Many sales producing mediums have been used by electrical dealers in their efforts to increase the sale of electrical products during the Christmas buying season and a number of these have been found to be exceedingly successful. Window displays have of course been one of the most important adjuncts to the work of the salesmen in the store. These "silent salesmen" have been largely responsible for many of the

sales that have been made by electrical dealers in the past and no doubt they will continue to serve the merchant well. Displays which are pleasing to the eye have an excellent sales appeal and will do much to draw the pedestrian into the store where the salesman may show the prospect the advantages of the electrical Christmas gift. Time spent in preparing these feature displays will be productive in proportion to the appeal that is made to the pedestrian on the street. The novel window will attract more attention than will the ordinary one to which the merchant has given no particular thought. If the dealer will spend a considerable amount of time in designing his Christmas display, his profits from appliances sold will be much larger than if he made no particular effort to attract trade to his establishment. On pages 344 and 345 of this issue there are examples of window displays that met the dealers' requirements admirably. Prospects were drawn into the dealers' stores and sales



Three hundred and sixty-seven people stopped to look at this window display in one hour. The sales record also showed a decided increase in business over that of previous Christmas seasons.

"Give Something Electrical"

were made to these people who were attracted by the window displays.

A Feature Window Display

In some cases dealers have found it to their advantage to go into the development of feature window displays involving considerable thought and construction work. The Field Electrical Company of San Bernardino, Calif., is one of these. George S. Black, the window decorator for the concern, spent several weeks in preparing the window which proved its worth in the Christmas buying season last year. The window owed its pulling power not only to its novelty, for it was a snow scene and San Bernardino residents were not accustomed to seeing snow, but also to the effective presentation of the electrical appliances.

The window showed a snow scene in the mountains and by means of different lighting effects, was made to repre-

scintillated on the snow and water below. Hundreds of tiny pieces of tinfoil were placed in the trees and these gave the trees the appearance of being covered with ice. During the night scene, the moon rose above the mountains casting its cold rays on the objects below.

A snow storm produced by light constituted the third scene. This effect was accomplished by rotating a perforated drum around the light source. The drum was concealed in the foliage above the display. The effect was similar to that produced by a sciopticon and required many evenings of experimenting, on the part of the window trimmer, to get the desired effect. A specially designed flasher mechanism was used to control the effects, the entire changing from one scene to another being done automatically at regular intervals.

A complete list of the smaller electrical appliances was presented in these surroundings, the three effects and the general display being used only to attract the attention of the passer-by. As the center of the window was arranged to represent snow banks, excellent space was provided for the displaying of the appliances. The bright nickel finish of the appliances that were displayed stood out particularly well against the white background. To carry the message of giving electrical presents, small cards were attached to each article suggesting that particular piece as being a suitable gift for some member of the family.

Other Sales Producing Mediums

Window displays, despite the fact that they act as a welcoming hand to the prospective customer, are not the only mediums which can be used to increase business in the Christmas season. Newspaper advertising if well directed will prove to be one of the most effective sales producing factors that can be employed by the electrical dealer. Money spent in this direction provides for the placing of the suggestion to buy electrical gifts, before the eyes of thousands of readers and is no doubt responsible for a large part of the trade that is conducted each year. Examples of what electrical dealers have done to increase their Christmas sales by means of newspaper advertising are presented on page 346.

During the 1922 Christmas selling campaign in Denver the Electrical Co-operative League of that city fostered a scheme which proved to be quite effective in producing sales. By arrangement with dealer members of the League, electrical merchandise certificates, entitling the holder to secure any amount of electrical devices from dealer members of the Electrical Co-operative League, were sold by all members of the League. These certificates could be purchased in any amount and aided the Christmas shopper considerably, particularly when he did not know exactly what the needs of his friends were. Needless to say, the idea added considerably to the gross retail business that was conducted in Denver.

The advertising of these certificates was done in a cooperative way, dealers joining to pay for advertising space

used in notifying the public of the gift coupons. The League also spent a small amount of money in advertising the certificates. The merchandising of the certificates was done by each dealer separately and the wording that was printed on the coupons stated that they were redeemable by the recipient at the store from which they had been sold. In addition to directly advertising the certificates, dealers that had them for sale noted this fact at the bottom of all of their display copy used in connection with Christmas.

Newspaper advertising is acknowledged to be one of the most effective sales producing agents that is being used in present day merchandising. There are, however, several other forms of advertising which are excellent aids to the electrical dealer during the Christmas season. The Society for Electrical Development, Inc., has during the past few years, prepared a

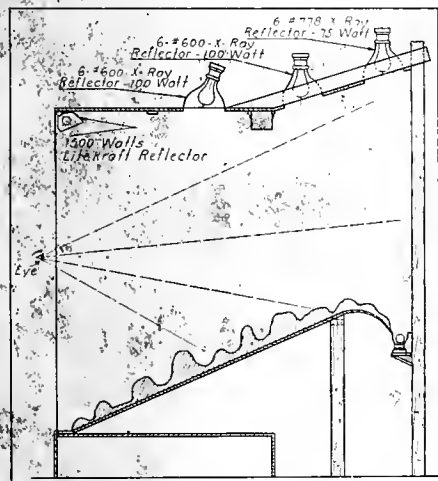


Fig. 1—Showing cross-section of the Christmas display window of the Field Electrical Company.

sent the scene at three different times of the day. The accompanying photograph gives an idea as to how the window appeared to the public. The side lines of the display were composed of young spruce trees which were secured especially for the display from Arrowhead Woods. These trees were so arranged as to give the effect of a dense forest on each side of the main display. In the rear of the display a small waterfall was visible. This seemed to be falling over a cliff which was covered with snow and ice. From the base of the waterfall, down and across the display, a mountain stream flowed. Copious amounts of white cotton and powdered isinglass were placed around the entire display in order that the wintry effect might be carried out still further. A drawing of a cross-section of the window is shown in Fig. 1.

The lighting effects used on the display were particularly good. The first scene was a sunset on the mountains, secured by means of colored spot lights being directed against the mountain peaks that appeared in the background. This scene gave way to the second one which showed the display under a moonlight effect. The cold light of the moon, which was produced by a spot light

Buy Your Xmas Appliances

" " " From Us " " "

WE HANDLE IRONS, PERCOLATORS, TOASTERS
WAFFLE IRONS, CURLING IRONS, HEATERS AND
EVERYTHING ELECTRICAL.

Xmas Tree Outfits and
Extra Lamps
We Test Your Tree
Outfits Free

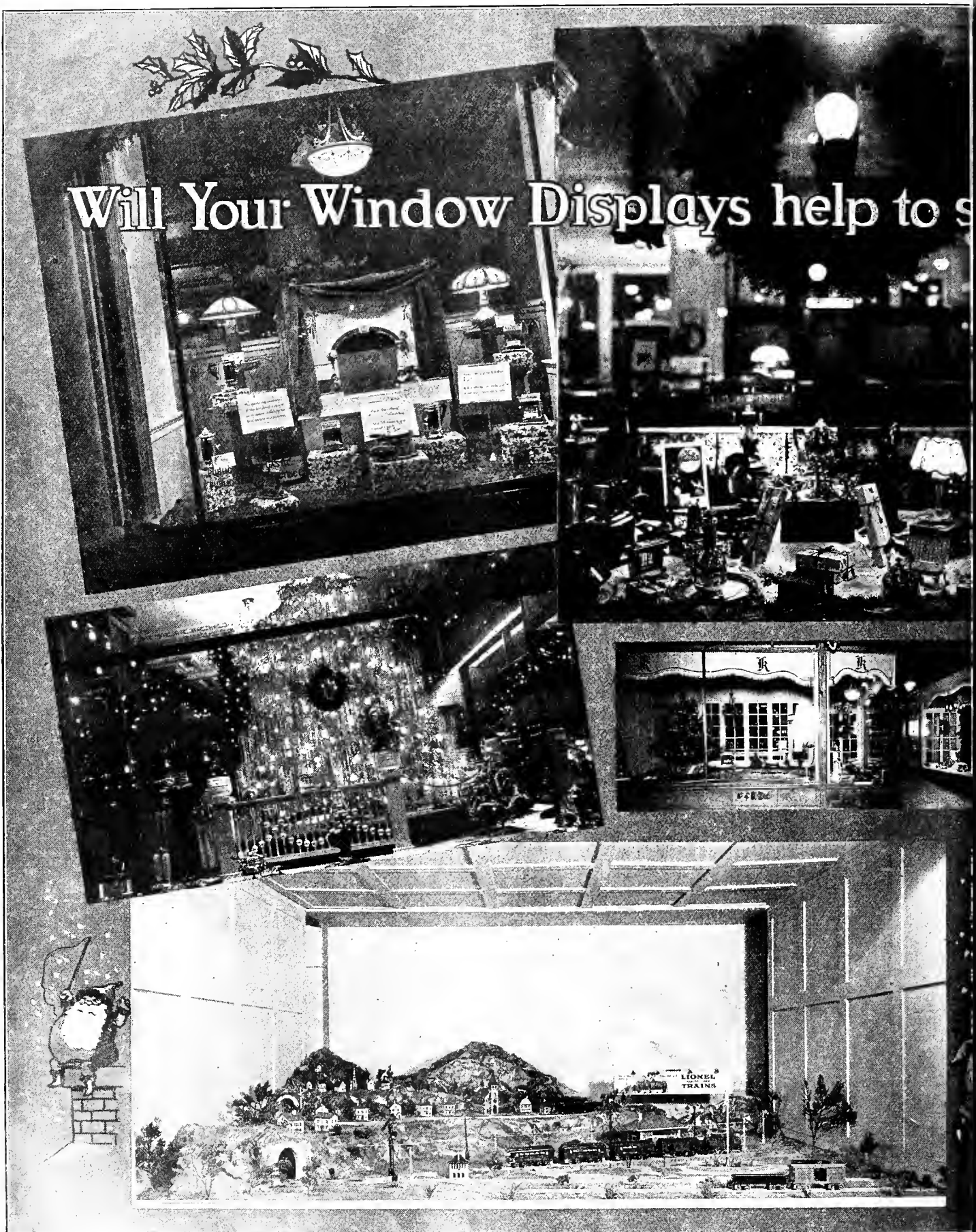
Stickers attached to bills and letterheads will carry the electrify message to customers.

number of these sales helps which have for the most part appeared in the form of booklets designed to be sent to prospective customers. This year the Society has prepared for the trade a Christmas gift suggestion folder with a distinctive and attractive cover depicting an army of the Santa Claus tribe carrying various appliances. The booklet is to contain eight pages and will be ornamented with red poinsettia decorations. The text will explain, in pointed paragraphs, the suitability of the various electrical appliances for Christmas gifts. In addition to this booklet, the Society has prepared a four-color Christmas wreath which is suitable for pasting on windows or for standing on the floor of the display window. There will also be a set of Christmas Santa Claus cut-outs which show the familiar figure pointing in various positions. These little figures, standing twelve inches high, work in admirably with window displays of small appliances. A poster stamp in four colors will also be distributed by the Society to members and non-members at a reasonable cost.

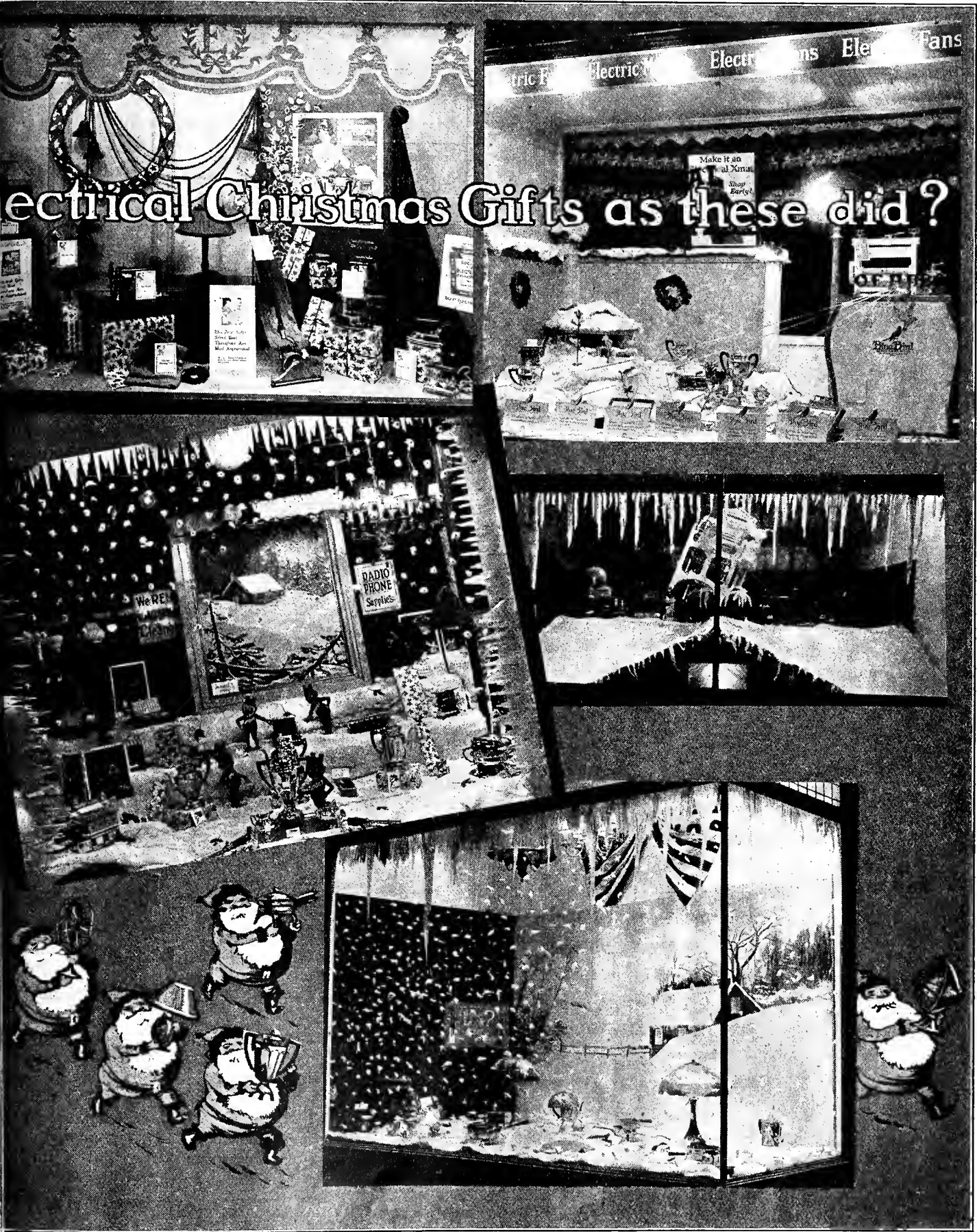
The Direct-by-Mail Appeal

Individual dealers have also often found that the booklets prepared by manufacturers are of aid in increasing the Christmas business. These booklets, when carrying the dealer's imprint, stating where the appliances may be purchased, are always kindly received by the public because of the fact that they give a number of suggestions as to what gifts are appropriate at Christmas time.

"Give Something Electrical"



“Give Something Electrical”



“Give Something Electrical”

The direct-by-mail appeal has also been found to be effective in other ways. The retail appliance department of a western central station company in one of its campaigns to increase the sale of electrical appliances as Christmas gifts, started the sales creating work about the middle of October and continued to follow-up the original material until a few days before Christmas. The first

Dear Madam:

We know you're busy. It's in the air. There's so much to be done in every little 24 hours' round that unless you have all the modern labor savers, the atmosphere just naturally gets stirred up and whirly.

That's why we've made a big effort to hurry ahead a bit and help you plan for the busiest time of all—Christmas.

Christmas is wonderfully happy and joyous, but every minute is so crowded that sometimes—well, it becomes a little "too much," doesn't it? And so we're suggesting that you take time

Following this letter various pieces of literature were sent to those on the list. Another power company used stickers attached to the monthly electric bills to call attention to the fact that electrical appliances could be purchased from it.

Development of a large and profitable business during the next two months is possible if the individual dealers will

AN OPEN LETTER TO SANTA CLAUS

By JOE OSIER

Comes the time when the modern housewife, with advanced ideas, breaks the chains which bind her to the kitchen sink—

Settles down in a quiet corner and writes a letter to Santa Claus, telling that fine and fat old man what she would like to have in her Holeproof hose on the morning of December 25th.

And, if she is smart—and we will all concede she is—she will write:

My Dear Mister Claus:

Since the day that I took the vows—agreeing to love, honor and "yes" on all occasions; beginning with the time I swapped sweet girlhood for wifehood, with its attendant cares and boiled dinners and phoney excuses, I have washed millions of cracked cups by hand, made toast in the primitive way, concocted coffee in unsanitary containers and worn my radiant ringlets in kid curlers.

But now, mine eyes have ope'd. I see a way out. The clanking chains which have bound me can be un-

loosed and I can be as free as the lunch which adorned the mahogany in pre-Volstead days. Man's genius and electricity have liberated me. The gates of my goal swing wide and I stand blinking in the sunshine.

I see no reason why I should be enslaved further. The vacuum cleaner, the electric washers—(dish and clothes)—the flatwork ironer, the electric curler—all are ready and willing to align themselves on the battlefield in my defense. Therefore, I am sounding the tocsin and

I shall keep on sounding it until the call is heard by every electrical dealer and harassed husband in the Universe.

I know that you will be the most powerful ally associated with the movement I am starting; therefore, I beseech you, accouter yourself for the fray. Make ready! Be ready!

And on December 25th, this year, sow broadcast the seeds of discontent in the bosom of every wife; seeds that will grow and bloom and blossom and that cannot be harvested until the electrical needs of every housewife are satisfied.

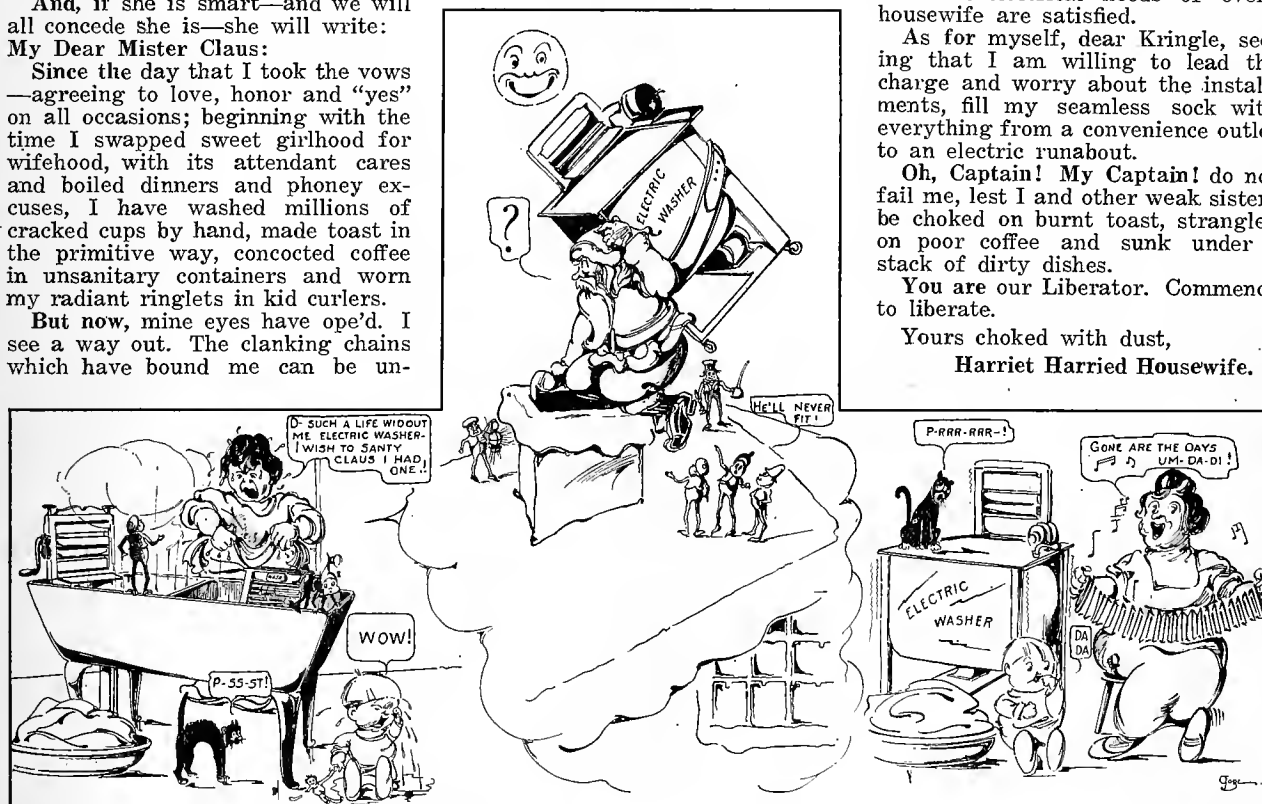
As for myself, dear Kringle, seeing that I am willing to lead the charge and worry about the installments, fill my seamless sock with everything from a convenience outlet to an electric runabout.

Oh, Captain! My Captain! do not fail me, lest I and other weak sisters be choked on burnt toast, strangled on poor coffee and sunk under a stack of dirty dishes.

You are our Liberator. Commence to liberate.

Yours choked with dust,

Harriet Harried Housewife.



thing that was sent was a letter addressed to "Dear Madam." A two-color letterhead was used and a Christmas morning scene was reproduced on one corner of the sheet. Down the left hand side of the paper there appeared a list of electrical appliances which were suggested as being suitable Christmas gifts. The letter was sent to all residential customers of the power company. The body of the letter read as follows:

"firmly, by the forelock" and start thinking Christmas—now.

In selecting gifts it has doubtless occurred to you that your family and friends—like you—are tremendously busy. Why not give them something to lighten the load—to set them free for friendly times?

You'll find electrical appliances the most welcome of all Christmas gifts. Inexpensive to buy and economical to operate, they express your thoughtfulness by years of fine, capable service.

And there's such a wonderful range of selection! Come in and let us show you the variety of beautiful, durable, electrical helpers.

Sincerely yours,

work in conjunction with the cooperative organizations and if they will exert themselves in soliciting business among their local prospects. A judicious use of advertising space, direct-by-mail literature, and window displays will draw customers to the store. A well arranged store room where courteous salesmen are in attendance to demonstrate the appliances to customers will in most cases complete the sale that the dealer wishes to make.

"Give Something Electrical"

INDUSTRIAL NEWS



Charles G. DuBois Discusses Municipal Ownership

Western Electric President Says Engineering and Commercial Aspects Are Stumbling Blocks of Government Projects

That the American people are opposed to government control and operation of business of any character is the belief expressed by Charles D. DuBois, president of the Western Electric Company, in an interview during his recent visit to San Francisco. Mr. DuBois is making an inspection trip of branch offices of the Western Electric Company and visited Denver, San Francisco and Los Angeles while in the West. This is the first time in five years that he has been to the Pacific Coast.

In discussing municipal ownership, Mr. DuBois said:

"The majority of ventures in both municipal and government ownership of public utilities have been both costly and unsuccessful. Municipal control of water works and such simple utilities seems to be sound but as a utility becomes more complicated, more technical and more involved, municipal ownership is inadequate. Certainly no business is more complicated and technical than the electric power business. One reason for the seeming failure of municipal enterprises of this character is the inability of these agencies to pay for the proper technical advice and skill necessary for their operation. They may pay at the start but as the operation proceeds, politics creep in and disruption follows. The engineering and commercial aspects of the electric utility business are the greatest stumbling blocks in the path of successful public operation.

"I have only one suggestion to make to the utilities. Give the best and most efficient service at the lowest possible rate which will yield a fair return on your investment. When you are sure that this is being done, tell them about it. By that I do not mean to make a lot of frothy high sounding statements. Buy advertising space in the newspapers and give the people plain, straightforward facts about you and your business. The American people are primarily honest and sportsmanlike. Appeal to this inherent sportsmanship. Do your job in the best possible manner, show them that you are doing it, and they will let you alone.

"The attitude of the public toward the telephone companies at the present time is a fair example of what I mean. All thought of government ownership of these utilities is dead. Why? Because we have always rendered the best possible service as cheaply as possible and have consistently told the people about what we were doing. The public would frown at any attempt to place the tele-

phone companies under government control at the present time as the result of the steps which we have taken."

Mr. DuBois began his career with the Western Electric Company in 1891 when he went on the payroll at \$10 a week. Subsequently he became chief clerk of the New York office and secretary of the company. He became comptroller of the American Telephone & Telegraph Company in 1907. During the war he was comptroller of the American Red Cross. In October, 1918, he returned to the Western Electric Company as vice-president in charge of



Charles G. DuBois, president of the Western Electric Company.

administration and in June, 1919, he was made president of the company.

He is accompanied on his western trip by F. B. Gleason, general telephone sales manager. Mr. Gleason was manager of the San Francisco office of the company from 1909 to 1913, later taking charge of the company's operations at Tokyo.

The City Council of Los Angeles, Calif., has recently voted to authorize the expenditure of \$25,000 to be used in securing a valuation of the electrical distribution system of the Los Angeles Gas & Electric Corporation in that city. The California State Railroad Commission has started making the survey to prepare the valuation of the distribution system. The company serves approximately one-third of the users of light and power within the city.

Hetch Hetchy Committee Makes Recommendation to City

That the City of San Francisco should petition the California Railroad Commission to prepare a valuation of selected portions of the distributing systems of the Pacific Gas and Electric Company and of the Great Western Power Company within the city is the recommendation presented to the San Francisco Board of Supervisors by the Citizens' Advisory Committee on Hetch Hetchy power. The committee does not at the present time recommend the purchase of either of the systems, but it does feel that a valuation should be made at the present time.

The committee announced that the city will have a power house generating 70,000 kw. by Jan. 1, 1925 and that the city would also have a transmission line leading into San Francisco by that time. The recommendation was made that the city refrain from entering into any contracts for the distribution of the power by any private corporation.

At a meeting of the Board of Supervisors it was unanimously agreed that the city attorney should draw up the necessary legislation which would call upon the Railroad Commission to make the valuations suggested by the Advisory Committee.

Wenatchee Transmission Line Is Put in Service Oct. 14

On Oct. 14, the Wenatchee transmission line, constructed between the White River Power Station of the Puget Sound Power & Light Company and the Columbia River Valley, a total length of 120 miles, was placed in service. The construction of this line was begun in July last year and the first 100 miles was placed in service in May this year, but the installation of the new transformers at the White River plant, together with the addition to the station, were not completed until last week, so that the entire Wenatchee line had not previously been placed in service. The line, as well as the addition to the plant, were constructed by the construction division of Stone & Webster, Inc.

The company has recently begun the construction of two 110-kv. outdoor substations at CleElum and Wenatchee, Wash., which will complete the entire high tension distribution system in connection with the Wenatchee line.

Purdue University, Lafayette, Ind., has recently published Bulletin No. 14 which presents matter entitled "Tables of Transmission Line Constants." The booklet was prepared by D. D. Ewing, professor of electric railway engineering at Purdue University.

Charles P. Steinmetz Succumbs to Chronic Myocarditis

Charles Proteus Steinmetz, chief consulting engineer of the General Electric Company, died in Schenectady, N. Y., about 8 a.m. on Oct. 26, of chronic myocarditis. He had been ill some days following his return from the Pacific Coast, but death came suddenly. Dr. Steinmetz was born in Breslau, Germany, on April 9, 1865, and was the son of Carl Heinrich and Caroline Neubert Steinmetz. He received his education at the Breslau Gymnasium (High School) and at the University of Breslau.

He became involved in social democratic agitation and left for Switzerland in 1888, where he studied at the Polytechnicum. From there he emigrated to the United States in 1889 and obtained a position with the Osterhold & Eickemeyer Manufacturing Company as draftsman, later being promoted to the position of electrical engineer and designer and finally was assigned to research work in charge of the Eickemeyer laboratory.

On absorption of the Eickemeyer-Field interest by the General Electric Company he joined the latter concern and was attached to the calculating department at Lynn, Mass. He was transferred to Schenectady in 1894 where he took charge of the calculation and design of the company's apparatus and also engaged in research and development work. About 1910 he organized the consulting engineering department of the General Electric Company.

For a number of years he was professor of electrical engineering at Union College and at the time of his death was professor of electro-physics there. He was also retaining the position of chief consulting engineer with the General Electric Company. The honorary degree of master of arts was conferred on him by Harvard in 1902 and he was made a doctor of philosophy by Union College in 1903. Dr. Steinmetz was a past president of the National Association of Corporation Schools, of the American Institute of Electrical Engineers and of the Illuminating Engineering Society. He held the office of vice-president of the International Association of Municipal Electricians and was an honorary member of the National Electric Light Association and a fellow of the American Association for the Advancement of Science. He was a member of the British Institution of Electrical Engineers, the American Mathematical Society, the Quaternion Society, the Society of Mechanical Engineers, the Electrochemical Society, the Physical Society, etc. He was president of the Common Council of the City of Schenectady some years ago and was twice president of the board of education.

Dr. Steinmetz was known as the author of numerous articles and ten or more books on electrical, mathematical and engineering subjects, etc., which are accepted as text books in colleges, laboratories and workshops. He regarded as his most important contributions to science "The Investigation of Magnetism" which deals with the law of hysteresis; "The Development of Symbolic Method of Alternating Current Calculations"; and "The General Theory of Electrical Transients."

The noted electrical engineer never married and is survived by a half-sister living in New York and by an adopted son, J. L. R. Hayden, and the latter's family who lived at the Steinmetz home. The funeral was held Oct. 29. Honorary pall bearers included General Electric Company officials, while the actual bearers were his co-workers in the laboratory. Dr. Steinmetz was buried at Schenectady.

Los Angeles Citizens May Drink Colorado River Water

To determine the feasibility of bringing water from the Colorado River to supplement the city water supply of Los Angeles, Calif., surveying parties have been put in the field. The survey is being made under the direction of William Mulholland, chief engineer of the Los Angeles Bureau of Water Works and Supply. The Board of Public Service Commissioners of Los Angeles directed Mr. Mulholland to conduct the survey.

The possibilities of the Colorado River as a source of water for Los Angeles were suggested by Mr. Mulholland after an inspection trip which he made recently. The engineer has announced that the city's present water supply will, at the present per capita rate of consumption, supply a city of 2,000,000 people. It is held that the influx of manufacturing interests will change the rate of consumption.

The city has not yet obtained a government grant to divert water from the Colorado River. The length of the pipe line that would be necessary is approximately three hundred miles.

Small Projects Are Subjects of Water Applications

The Department of Public Works of the State of California through the Division of Water Rights has, during the month of September, received only two applications for permits that involve power projects of any size. Thomas A. Clarke, of San Francisco, has made application for a permit to appropriate 25 sec.-ft. of water from the South Fork of the Merced River in Mariposa County. The applicant proposes to use the water in the development of hydroelectric power to be used in the operation of the Little Wonder Mines. The estimated cost of the development is \$25,000.

The Mt. Shasta Power Corporation with head offices in San Francisco, has filed an application for the right to appropriate 25 sec.-ft. of water from Rock Creek in Shasta County. The estimated cost of the power development that is planned is \$15,000.

Although twenty-six permits to appropriate water in California were granted by the Division of Water Rights, there were none for power projects of any size. All of the permits covered small applications.

The National Electric Light Association has recently published the report of the subcommittee on ventilation of the electrical apparatus committee. The publication is entitled "Ventilation of Central Station Buildings and Equipment." The booklet contains 46 pages and is well illustrated.

Conference Discusses Northeast Superpower Project

A conference, attended by the chairmen of the public service commissions of the ten states most interested, was held in New York on Oct. 13. The conference was called by Herbert Hoover, Secretary of Commerce, and was held with the approval of President Coolidge. The purpose of the meeting was to engage in a preliminary discussion as to the steps that might be taken by federal and state authorities in the promotion of superpower development in the Northeastern States.

Mr. Hoover in opening the conference stated that the interconnection of the electrical generating units in the ten states was advisory and essential and that toward this end state boundaries should be disregarded in the interconnection of the power systems. He stated that with a satisfactory superpower system, the cheaper sources of hydroelectric power as well as steam generated power could be made available through the use of long distance transmission lines. The point that more economical distribution of power could be effected was also brought out.

E. G. Buckland, vice-president of the New York, New Haven & Hartford Railroad, advised the conference concerning the legal aspects of the interconnecting of the power systems. Mr. Buckland, who was a member of the advisory board of the Superpower Survey made in 1921, stated that steps should be taken to remove legal inhibitions on the exchange of power over state lines. It was his opinion that such action was only necessary in those states which had prohibitory legislation and that in others no permissive law was necessary. He favored the plan to have the states provide for the exchange of power instead of the adoption by the federal government of legislation which would legalize the exchange.

During the conference each of the chairmen of the public service commissions was called on and in every case, these men indorsed the plan. All of the men expressed the view that the project could be brought to a satisfactory conclusion and pledged their support to Secretary Hoover's plan.

Power Costs to Be Defined for Denver Manufacturers

A report is in preparation at Denver at the direction of the local Civic and Commercial Association defining power costs for the benefit of manufacturing interests and designed to show how various classes of rates may be utilized.

V. L. Board, general superintendent of the Public Service Company of Colorado, was appointed a member of the special committee now compiling the report, which, when approved, is to be given general distribution by the Denver central station. Misunderstandings of rates and conditions and the failure of manufacturers to make proper arrangements for the use of power, were given as the reasons for the appointment of this special committee by the Civic and Commercial Association.

It is the opinion of the committee that Denver is under no disadvantage as to power rates in comparison with other cities and in fact has advantages over many.

Transmission Line Over Sierra Nevadas Completed

Truckee River Power Company Connected With Pacific Gas and Electric Company System by Summit-Washoe Line

A 60,000-volt transmission line of considerable importance to the future development of California and Nevada was recently completed by Stone & Webster, Inc., for the Truckee River Power Company. This line has the distinction of being at one of the highest altitudes in the state and is constructed

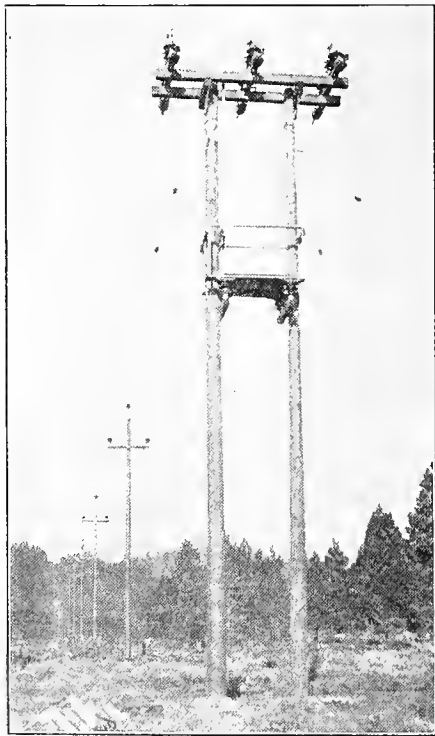
down the Truckee River to the Washoe plant of the Truckee River Power Company, where it is tied into the company's distribution system.

The capacity of this line is 7,500 kva. and it is estimated that this will amply supply the needs of the Reno and Virginia City districts for some time to



The rugged character of the country over which the Summit-Washoe transmission line was built is plainly shown by this illustration.

to withstand the heavy storms that prevail during the winter season at the summit of the Sierra. The line ties to the Pacific Gas and Electric system near Summit Station along the line of the Southern Pacific Railway. It ex-



Pole-top switch and section of line on the Summit-Washoe transmission line which was recently completed.

tends over the Sierra Divide at an elevation of 7,300 ft., skirting the range above Donner Lake till it reaches the Truckee Canyon. The line then goes

come. Owing to the distance between the power station at Lake Spaulding and the point of distribution in Nevada, there is a considerable drop in voltage which will be taken care of by an automatic voltage regulator to be installed at the Washoe plant. The distance between Lake Spaulding and Washoe is 50 miles, but the current is carried still farther into the mining district south of Reno and it will therefore be necessary to have a potential of 63,000 volts at Washoe to compensate for the additional line drop between Washoe and Virginia City.

The conductor for this line is of No. 2 stranded copper wire supported on 70,000-volt pin type insulators. Angles up to 5 deg. are turned on the standard tower, while angles between 5 deg. and 15 deg. are turned on a "D" type or dead-end type tower. Between 15 deg. and 30 deg., a single string of suspension insulators is supported directly by the poles, the conductor being fastened by ordinary suspension cable clamps. In making angles over 30 deg. two suspension strings of insulators are used, one holding each span of the conductor. Both these latter types of towers are common to most line construction on the Pacific Coast.

The spans at the higher altitudes are 150 ft. while at the lower altitudes, this is lengthened to 200 ft. The poles are Class A red cedar, 45 ft. long.

Owing to the fact that several other make very careful surveys for the location of the line and thus avoid serious parallels with such utilities. The right-of-way for the line was cleared for a width of 25 ft., but all dangerous trees, whether live or dead timber, were felled. The line will be particularly difficult to patrol during the heavy snow periods and it was thought best to take every reasonable precaution against failure during a severe storm.

California Coast Cities Favored by New Electric Rates

Bringing the electric light and power rates charged by the Coast Valleys Gas & Electric Company and by the Coast Counties Gas & Electric Company into line, new schedules of rates have been made for both companies by the California State Railroad Commission. The new schedules will replace a system of rates which gave a variety of charges for service in the towns served by the two companies. The new rates provide that charges shall be the same in all of the towns that receive service.

The rates of the Coast Valleys Gas & Electric Company which are applicable to Monterey, Pacific Grove, Carmel, Salinas, King City and the surrounding territory on the Monterey Peninsula and in the Salinas Valley are reduced 8 per cent for lighting and 14 per cent for agricultural power use. Santa Cruz, Watsonville, Hollister, Gilroy and surrounding territories which are served by the Coast Counties Gas & Electric Company will have their lighting rates lowered on an average of 15 per cent and industrial power rates are lowered on an average of 18 per cent. Agricultural rates are lowered 12 per cent.

Both companies purchase power at wholesale from the Pacific Gas and Electric Company and distribute it in their respective territories. The reductions just announced bring the rates to approximately the pre-war basis.

Action on Girand Application Indefinitely Postponed

Feeling that it has no authority to grant permission to any person to start construction on any power project on the Colorado River until the Colorado River Compact is either accepted or finally rejected, the Federal Power Commission has indefinitely postponed action on the application for a construction permit made by James B. Girand.

Mr. Girand has for several years held a preliminary permit on a site at Diamond Creek on the Colorado River. The Commission has ruled that the priority right to the site held by Mr. Girand under the preliminary permit issued in 1921 will hold good until the Commission shall finally approve issuance of the license or reject the application.

The British Columbia Electric Railway Company has commenced work on a new high-tension transmission line from its hydroelectric plant at Jordan River to its auxiliary steam plant at Brentwood, B. C. The distance is 35 miles and the cost of construction is estimated at \$150,000. The new line is not essential for present business, but it is being erected to guarantee uninterrupted service in the event of accident to the existing line. The company, too, has under consideration the advisability of extending its service to Ladysmith and Nanaimo, coal mining towns some 60 miles distant from Victoria.

The Southern California Edison Company has applied to the California State Railroad Commission for permission to issue \$11,500,000 of twenty-year 6 per cent bonds. The money is to be used in financing part of the \$26,000,000 additions that are being made to the properties of the company.

Pelton Gets Contract for Pit River No. 3 Turbines

The Pacific Gas and Electric Company has awarded the contract for building three 33,000-hp. vertical reaction turbines at its Pit River No. 3 plant to the Pelton Water Wheel Company, of San Francisco.

These units will operate under a static head of 313 ft. and an average effective head of 280 ft. They will be of materially greater dimensions than any turbines so far installed in the West, the only units comparable with them in horsepower output going for considerably higher heads, and therefore handling smaller quantities of water. Each casing will consist of five pieces, each piece weighing ten tons or more.

The turbines will embody the most recent advances in design developed both by the Pelton Water Wheel Company and its associate the I. P. Morris Department of the Wm. Cramp & Sons Ship & Engine Building Company. One of these three turbines will be equipped with Pelton rubber seal rings, and if the test of service shows materially better results than for the other two units, rings will be installed on these as well. Each turbine will have disk-type guide vanes and a spreading draft-tube.

The contract includes besides the main units, the governors, oil-pumping sets, and other accessory apparatus, as well as three 108-in. butterfly valves and an impulse wheel for operating a spare exciter set.

Southern California Edison Co. Reduces Electric Rates

Rates which will become effective after Nov. 15, will give residents of southern California lighting service at a lower cost than has ever been offered there before. The new schedule has recently been announced by the Southern California Edison Company.

The reductions that will be made place the charge for the first 50 kw-hr. at 6.5 cents per kw-hr.; the next 200 kw-hr. at 5.5 cents per kw-hr. The rates then slope off until all current over 5,000 kw-hr. per meter per month is charged for at the rate of 3 cents per kw-hr. These rates apply to the

southern California districts of the company while in the San Joaquin Valley districts of the company the initial rate is one-half cent per kw-hr. higher. All current in excess of 1,500 kw-hr. is sold at the 3.25-cent rate.

Reductions will also be made in other classes of service. Street lighting rates will be reduced 11 per cent, industrial power rates will be lowered 10 per cent and agricultural rates in southern California districts will be reduced 10 per cent. Railway power rates will be lowered 6½ per cent and power rates for re-sale will be reduced by 7½ per cent. Agricultural rates in the San Joaquin Valley districts will be reduced 7½ per cent.

The saving that will be made by consumers of the Southern California Edison Company is estimated by the California State Railroad Commission to be \$2,200,000 a year. This estimate is based on the 1923 income of the company. The present lighting rates of the company provide for a charge of 7.9 cents per kw-hr. after the first 50 kw-hr., grading off into a charge of 4 cents per kw-hr. for all current in excess of 5,000 kw-hr.

Flywheel Breaks in Vernon, B. C. Steam Generating Plant

A curious accident happened at Vernon, B. C., recently, when the 20-ton flywheel of a steam engine of Swedish manufacture, at the city's electric generating plant, burst, doing considerable damage to the power house, but, fortunately, injuring no one. The two men were in the act of stopping the engine for the night when the accident occurred, one man being on either side of the wheel. The fragments of metal, some of which weighed several tons, flew off in a direct line to that in which the wheel was running, some going through the roof, some through the concrete walls.

Vernon has had considerable difficulty in keeping its streets and houses lighted since the accident. Among other devices, the city steam roller has been harnessed to one of the dynamos and has rendered valiant aid to the two 200-hp. engines, which were uninjured.

Farley Osgood Is Favored for Institute Presidency

The placing of Farley Osgood's name in nomination for the presidency of the American Institute of Electrical Engineers is meeting with particular favor among members of the Institute on the Pacific Coast in view of Mr. Osgood's withdrawal from the candidacy a year ago when Prof. Harris J. Ryan of Stanford University was a candidate for the office. Mr. Osgood's nomination has been seconded in a petition signed by more than fifty of the leading engineers on the West Coast.

Aside from being one of the most active members of the Institute, Mr. Osgood is vice-president and general manager of the Public Service Electric Company of Newark N. J. After completing his studies in the Massachusetts Institute of Technology, he became associated with the American Telephone & Telegraph Company. His rise with this company was rapid and within five years he became territorial manager of New Jersey. In 1903 he was made chief engineer of the New Milford (Conn.) Power Company and four years later he became general superintendent of distribution of the Public Service Electric Company. In 1917 he was made vice-president and general manager of this company. His company set a remarkable record during the war under his direction, when it was hard pressed to keep ahead of the industrial power demands of the district which it served.

Mr. Osgood has been both a vice-president and manager of the American Institute of Electrical Engineers besides having held many important committee positions. He was instrumental in the formulation of the National Electrical Code as the Institute's representative on the committee which prepared those specifications. He has also been active in the affairs of the National Electric Light Association.

Umatilla Rapids Project to Be Discussed at Meeting

To further plans for immediate commencement of work on the Umatilla Rapids power project, a meeting of the Umatilla Power Site Association was called to be held in Pendleton, Ore., on Oct. 29. United States Reclamation Service engineers recently reported that exploration work for a proposed 50-ft. dam had resulted in one drill penetrating solid rock to a depth of 65 ft.

Members of congressional delegations and the governors of Washington and Oregon, with reclamation officials, were invited to attend. The project would effect 270,000 acres and develop an estimated horsepower of 800,000.

To give a more personal and intimate service to the electrical industry of the Pacific Coast, the directors of The Society for Electrical Development, Inc., have authorized the establishment of an office at 527 Rialto Building, San Francisco, Calif., Samuel H. Taylor, formerly president of the Electric Railway & Manufacturers' Supply Company of San Francisco, has been appointed Pacific Coast manager. Mr. Taylor will continue to serve as secretary of the Pacific Coast Electrical Association.



Executives of the San Francisco office of the General Electric Company assembled to bid Dr. Thomas Addison farewell upon his retirement after 33 years of active service with the company. The men reading from left to right are: (standing) J. R. Auguston, H. L. Nagel, M. Rhine, L. E. Voyer, F. E. Boyd, C. A. Loring, A. V. Thompson, J. W. Mahoney, A. G. Jones, G. I. Kinney, (seated) R. M. Alvord, E. O. Shreve, Dr. Thomas Addison, J. V. Anthony and R. F. Monges.

San Diego Theater Will Be Completely Electrified

**Builder Claims That Theater Will Surpass Any on Pacific Coast in
Regard to Up-to-Date Electrical Installation**

Claiming that its electrical equipment will surpass that for any theater in the West, Robert Hicks of San Diego, Calif., is having rushed to completion the new \$800,000 Balboa Theater, at the corner of Fourth and E Streets, so that the house may be opened to the public Christmas week. Southern Electric Company of San Diego, is doing the electric installation for the theater.

The theater will be equipped to be lighted on either the a.c. or d.c. service of the central station lines to take care of any emergency. Exits will be wired for two lights, one the emergency circuit, the other the regular circuit. There will be no proscenium light strips, but the auditorium will be lighted by concealed lighting units. Aisle lights will be provided also.

The stage will have, beside a full equipment of stage pockets, a two-row footlight, with outlets staggered; four 45-ft. borders, in which will be used 500-watt lamps on 12-in. centers. Provision for four colors to each border will be made, having 11 lamps per color, in individual compartments over which color shades will be used.

The organist and orchestra will be lighted by floods concealed in the ceiling, and over which color screens may be used. The dimming apparatus will be particularly complete. One bank of continuous duty interlocking dimmers, controlling both stage and house lights, with color masters and stage masters are to be installed. Space is to be provided for another complete set of dimmers at a later date.

A complete annunciator buzzer system, connecting the stage and the fifteen dressing rooms, is to be installed, with a master button to ring all at once if necessary. Return call buzzers between the stage and projection room, the projection room and orchestra, and the projection room and organ console, will give control of much of the house to the projection operator. Pockets in the front of the balcony for flood lights will also be controlled from the projection booth. Curtain motors will be controlled electrically from both stage and projection room. Four special gang push button plates, three of which will be in the projection room, will enable the operators to close, open, or stop either of the three or four curtains at any of four positions.

There will be three projection machines in the booth, besides spot lights, arcs, stereopticons, etc. House lights will be controlled from the projection booth by means of a douser circuit. Below the projection room will be a special rheostat room, in which will be housed a 140-amp., 75-volt d.c. flat compound interpole type generator, direct connected to a three-phase, 220-volt, 1,750-r.p.m., 40-hp. motor. For emergency a Westinghouse automatic starting rectifier will be provided as well. A preview room will also be controlled from the projection room.

A 200-watt baby spot in the foyer ceiling will illuminate the usherettes. Foyer and plaisance brackets, lobby, cove and flag floods, as well as ceiling floods, promise to make for unusual foyer lighting.

The exterior of the building, which is to be of pure Spanish architecture, will be lighted by running borders and floods. The tower will receive silhouette flood lighting, declared to be unique in treatment.

Marquise lighting, letter signs, and later a roof sign, will also receive special electrical equipment. Power will be used in the stage carpenter shop, in the organ operation, in the echo organ in the balcony loft, and a special direct current set will be installed on the stage for stage flood arcs. Temperature control apparatus, a heating system, the vacuum cleaning system, and supply and exhaust air fans, as well as a fire sprinkler system, will be electrically controlled and operated.

Wm. H. Wheeler, of San Diego, is the architect, and Holmes & Sanborn, of Los Angeles, are the consulting engineers in charge of the construction of the theater and office building for the Balboa Amusement Company, of which Hicks & Strobeck are the managers.

Fires Damage Utility Company's High Tension Lines

The series of disastrous forest and brush fires that have ravaged southern California during the past few weeks have taken their toll from the utilities as well as from private owners. Many of these fires have been caused by the grossest negligence and others have been purely accidental, but the net result has been costly indeed.

The Southern California Edison Company has suffered but slightly from these events but on Oct. 13 a fire raging in the Verdugo canyon region burned through the 22,000-volt transmission line feeding into Los Angeles and caused some service interruption. Owing to the excellent tie-in system of feeders the company was able, within a short time, to resume service and to throw the load to other stations. Edison crews fought with firemen and civilians in numbers up to 2,000 persons to control the conflagration which burned for many hours and which caused the death of at least two people.

The annual sales meeting of the Pacific Coast organization of the Westinghouse Lamp Company was held in San Francisco, Oct. 9-12. Representatives from San Francisco, Los Angeles, Portland, Seattle and Salt Lake City were in attendance at the meeting. R. W. Murphy, Pacific Coast manager of the Westinghouse Lamp Works, presided at the conference.

Electric Trucks Are Subject of Society's Monograph

The first monograph of a very inclusive publication program under the electric truck activity of the Society for Electrical Development, entitled, "Putting Electricity to Work to Reduce Delivery Costs," has just been released.

Although this forty-page fully illustrated booklet has been prepared primarily to interest central station executives, it contains much of interest to other branches of the industry. The cold facts of the application of electricity to trucking, written into inspirational copy, "Putting Electricity to Work to Reduce Delivery Costs," sums up the how, why and wherefore of central station interest in a battery charging load. Its contents treat of the following main subjects:

The electric truck as a means of solving the short-haul frequent-stop delivery phase of a great national transportation problem with emphasis upon the vast field for developing its more universal use.

What a battery charging load which comes at off-peak hours and at a very profitable rate, means to the central station in kilowatt-hours.

The electric truck at work in central station business—presenting the arguments of low cost, efficiency, long life, reliability, etc.

How a central station should proceed in developing electric truck business—a practical working basis for organizing an Electric Truck Bureau.

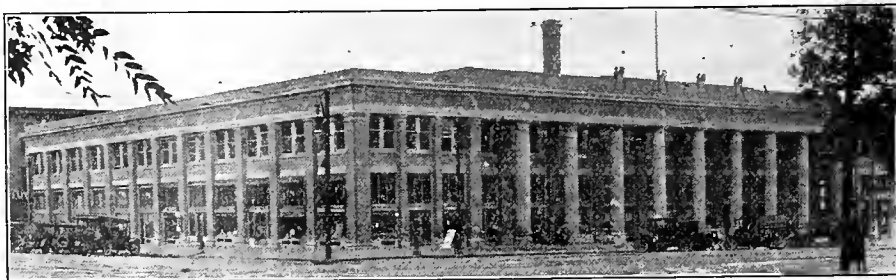
Copies of this monograph are available to non-members of the Society at 70 cents each and may be secured upon application to The Society for Electrical Development, Inc., 522 Fifth Avenue, New York City.

Electric Railways Dedicate New Station at Salt Lake

The new interurban station for electric railroads of Salt Lake City, Utah, was formally opened to the public Oct. 4. The big waiting room, which is 125 x 42 ft. in dimension, with a ceiling two stories high, was specially decorated and lighted for the occasion, and all other parts of the new building were in festive garb.

Former Governor Simon Bamberger, chairman of the board of directors of the Bamberger Electric Railway, with other officials of that road and of the Orem Electric Railway, were on hand.

The building, which is the local terminus of the Bamberger and Orem lines, was constructed by the two electric roads at a cost of \$300,000. The second story is divided into offices, including those of the traffic and operating departments of the two roads. On the first floor the waiting room and ticket office, which are handsomely finished in marble and tile, occupy the central position, while at the south end of the building there are offices and stores facing the street.



New inter-urban station for the electric railroads entering Salt Lake City, that was opened Oct. 4.

Public Superpower System Plan of International League

Officials of the Public Ownership League of America, who have recently returned from the international public ownership conference held in Toronto, Canada, have announced that they have been instructed to proceed with plans for a nation-wide drive for a public superpower system. The men have been instructed by the Canadian Conference delegates to prepare a measure to be presented to Congress which would provide for a federal superpower commission to be charged with the duty and responsibility of developing the nation-wide public superpower system.

A canvass is also to be made of the members of Congress to determine their views upon the public superpower project. Appeals are also to be made to the governors of all states suggesting that they back the project. Similar appeals will be sent to the leading municipalities throughout the United States.

The Canadian conference favored the forming of a superpower system which would involve every state in the Union and Canada.

Edison Companies Object to Use of Name Incorrectly

That several electric utility companies not rendering Edison service were using the name "Edison" in their corporate names was pointed out at the recent convention of the Association of Edison Illuminating Companies at Dixville Notch, N. H. The executives of several of the companies represented in the association pointed out that this use of the name was misleading.

A committee composed of Samuel Insull, C. L. Edgar and J. W. Lieb, made a report to the association and the following resolution was unanimously adopted:

Whereas it has come to the attention of the Association of Edison Illuminating Companies that in the incorporation of various companies throughout the United States for the creation, merger or combination of public utilities, there is a growing tendency to make use, without apparent authority, of the name "Edison"; and

Whereas it is evident that the chief purpose of such use of the name "Edison" is to mislead by taking advantage of the significance which the name has acquired, in the first place from the illustrious achievements of Mr. Edison himself, which have made the name a household word in this country, and in the second place

from the position enjoyed by the member companies of this association, which, striving from the first for the very highest standards in the electric light and power industry, have won the public's confidence and good will as reflected in the high place their securities hold in the esteem of the investing public; and

Whereas such unauthorized use of the name "Edison" is unfair both to the members of this association, which have contributed so much to maintaining the significance of that name, and to the investing public;

Now, therefore, be it resolved, that the officers and the executive committee of this association be, and they are hereby, directed to take such steps as may be practicable to stop further unauthorized use of the name "Edison," and that the member companies of this association in localities where such unauthorized use may occur be, and they are hereby, urged to do whatever may be in their power to aid and make effective the efforts of the officers and the executive committee with respect to carrying out the purpose and intent of this resolution.

Comparison of Power Generation Made by Federal Agents

The Department of Commerce has recently published preliminary figures relating to the kilowatt-hours of electric current generated by central electric light and power stations both commercial and municipal and by electric railways, in 1922, as compared with 1917 and 1912. These figures do not include the output of electric plants operated by mines, factories, hotels, etc., which generate for their own consumption, or those operated by the Federal Government and state institutions.

The amount of current generated in 1922 aggregated 45,307,536,711 kw-hr., as compared with 32,678,806,061 kw-hr. in 1917 and 17,621,808,893 kw-hr. in 1912, an increase of 38.6 per cent from 1917 to 1922, and of 157.1 per cent for the ten-year period 1912 to 1922.

"Better Lighting in Store and Office as an Asset to Business" is the title of a special 12-page booklet which the Society for Electrical Development has just completed. The subjects treated cover the flood-lighting of commercial buildings; the electric sign; correct window lighting and up-to-date special or auxiliary lighting units for the window; store-interior lighting; the lighting of offices and the maintenance of a lighting system. The Society also has available a consumer-booklet dealing only with store lighting—"Building Store Profit with Light" which is a part of its "Building Store Lighting Business" campaign material.

Books and Bulletins

SOUTHERN PINE MANUAL OF STANDARD WOOD CONSTRUCTION

Published by the Southern Pine Association, New Orleans, La. 186 pages. 4 1/4 x 6 3/4 in. \$1.50.

In the ninth edition of this handbook which has just been published, a considerable quantity of material has been added. The new matter includes data on timber working stresses based on recent extensive tests, new matter relating to the design of latticed wood trusses and the calculation of nailed and bolted connections in timber construction. This new material should be of considerable value to the architect, engineer and contractor.

In general the new edition covers the field in the same way as the eighth edition did. The aim of the manual remains to give the architect, engineer and contractor all of the information that may be needed in the solving of everyday problems in wood construction. The numerous tables giving data concerning the properties of yellow pine present this information in an exceptionally satisfactory manner.

Practice regarding almost all types of wood construction are covered in the manual and suggestions as to sizes of materials to be used are made. Readable tables give accurate data concerning the stresses, strains, deflections, etc., that will result in the application of various loads to a large variety of timbers.

Charles T. Main, engineer of Boston, Mass., has recently published Volume No. 3 of his series of books entitled "Industrial Plants." The new book contains a wide variety of illustrations showing the class of work in which Mr. Main and his associates have been engaged, as engineers, during the construction of the plants. Although most of the work was done in the eastern states, there are applications which would be of interest to western engineers. Most of the plants which have been covered in the booklet have been extensive users of electrical energy.

The British Columbia Electric Railway Company, Ltd., has recently prepared for distribution to its stockholders a booklet which constitutes a most comprehensive survey of the properties of that public utility. Editorial matter and illustrations give a thorough understanding of the extent to which the company has gone into the developing of the central station industry in the territory that it serves. The booklet is filled with descriptive matter and photographs of the generating plants and substations operated by the company and a considerable amount of space is devoted to the electric street car and interurban business that is conducted by the company. The booklet is an excellent example of how a public utility may show its owners what it is doing. A small number of the booklets will be distributed to leading citizens in the territory that the British Columbia Electric Railway Company, Ltd., serves.



When the engineers who attended the Pacific Coast Convention of the American Institute of Electrical Engineers at Del Monte, Calif., left that spot to go on the inspection trip of the Big Creek project of the Southern California Edison Company they did not expect to meet winter weather. A snow storm greeted the party when it made its inspection of the tunnel work of the company at the upper end of Huntington Lake on Oct. 7, 1923. A small part of the group that made the trip is shown in the illustration above.

Meetings

Hallowe'en Party Is Conducted by San Diego Club Men

Plans for a Hallowe'en party were announced by Fay Smalley, chairman of the program committee of the San Diego Electric Club at the Oct. 16 meeting of the electric men of San Diego, Calif. While most of the Electric Club meetings are noon luncheon affairs, it is the purpose of the organization to stage an occasional general get-together social event to which women are invited. Tuesday evening, Oct. 30, was set as the date for the first of these events this season, and a Hallowe'en party was arranged. The San Diego hotel ballroom was chosen for the affair.

Beginning with a dinner at 6 o'clock, the program was announced to include a talk by Carl Heilbron, on "The Progress of San Diego and the Part of Electricity in It." After the banquet the evening was planned for dancing. Hallowe'en decorations were to be arranged for so as to give the party true holiday flavor.

Committees in charge were named by Mr. Smalley as follows: Floor committee: Walter Wurfel, chairman, Jess Zweiner, Hugo Kuehmsted, G. H. P. Dellman, Bert Rose, Charles Dent, W. A. Cyr, and Bert Johnstone. The meal arrangements were to be in charge of J. F. Munro, chairman, A. Schreiber, and Bruno Barth. Decorations were to be in charge of Guy Miller, chairman, Phil Mayer, P. P. Pine, A. E. Scott, and L. M. Klauber. A ladies' reception committee consisted of Mesdames Jess Zweiner, chairman, Wurfel, Smalley, Kuehmsted, Johnstone, Cyr, Miller, Heilbron, Dent, and others.

Los Angeles Club Presents Cup to San Diego Club Men

The presentation of a hammered silver loving cup, the gift of the Electric Club of Los Angeles to the San Diego Electric Club, was the outstanding feature of the San Diego Electric Club's meeting of Oct. 16. The cup was presented to the club of the southern city by the northern electrical men in appreciation for the courtesies shown when the Los Angeles club visited San Diego on Sept. 27.

Mayor John L. Bacon of San Diego was the speaker of the day, being introduced by Bert Johnstone, city electrician, who had charge of the day's program. Mayor Bacon spoke upon the problems of city administration as contrasted with business administration. His topic was "What a City Can and Cannot Do." Fred Rhodes, city manager, was also present as a guest.

At the Oct. 9 meeting of the Electric Club G. H. P. Dellman, who was the day's chairman, introduced Judge Edgar Luce, of the superior court at San Diego. Judge Luce related numerous humorous incidents in court experience and kept the assembly amused throughout his talk.

B. J. Little, advertising manager for the Pacific Telephone Company, O. M. Collins new city electrical inspector, succeeding the late Walter Draper, and R. I. Minson, of the power company, were the day's guests. A. E. Johnson, resident engineer of the telephone company, A. R. Whisler of the power company, and E. W. Adams, business manager for the local electrical union, were introduced as new members of the club.

State Association Holds Regular Meeting at Sacramento

On Oct. 26, 1923, eighty-four members of the California State Association of Electrical Contractors and Dealers left San Francisco by special steamer for Sacramento. The following day there were held morning, afternoon and evening meetings at the Traveler's Hotel and many subjects of interest to the entire membership as well as to the industry in general were brought up and discussed.

Addresses were made by F. V. Mitchell, a certified public accountant who has devoted special attention to the affairs of electrical contractors and dealers, and by Albert H. Elliot, a San Francisco attorney who has been intimately connected with the electrical trade for a number of years. In the evening Mr. Elliot spoke again and gave a most inspiring talk on the Constitution of the United States. A full account of the meeting and trip will be given in the Nov. 15 issue of the Journal of Electricity.

COMING EVENTS

California Industries Exposition—
Exposition Auditorium—San Francisco, Calif.
Nov. 17-Dec. 2, 1923

American Society of Mechanical Engineers—
Annual Meeting—New York, N. Y.
Dec. 3-6, 1923

Denver Meetings Are Addressed by Eastern Engineer

An illustrated lecture dealing with "Superpower Systems for the Joint Use of Industries and Railways" was delivered before the Denver, Colo., section of the American Institute of Electrical Engineers on Oct. 19, by W. S. Murray, consulting engineer of New York, N. Y. The meeting was held at the Adams Hotel and was conducted in Mr. Murray's honor.

Mr. Murray's address took into consideration the economic production, transmission and distribution of power for joint use by the industries and railways and the stabilizing of it through private ownership under public regulation. The electrification of railways in relation to superpower systems was also considered by the speaker.

Under the auspices of the Sacramento Bee, a cooking school will be conducted in Sacramento, Calif., Nov. 6-9. Miss Bernice Lowen, home economist of the Edison Electric Appliance Company, Inc., will be the lecturer at the school. The lectures and demonstrations will be conducted in the Masonic Temple Auditorium.

Executive Claims Radicals Are Active in Washington

Stating that the radicals of the state of Washington were endeavoring to obtain control of the light and power companies there by advocating state ownership of public utility companies, Norwood W. Brackett, vice-president of the Puget Sound Power & Light Company, told the Lions Club of Spokane, Wash., that socialists of national reputation were canvassing the state to bring their proposals before the public.

Mr. Brackett told the meeting that the body of men behind the present scheme was the same group that two years ago put forward an initiative measure which proposed to permit municipalities to engage in any line of business and commercial industry. He said that the electric companies of the state were not seeking sympathy or even crying for a "square deal." That these companies are engaged in a legitimate, growing and prosperous business which is playing a part in the development of the state, was Mr. Brackett's opinion. He also stated that the companies were endeavoring to give the best possible service at the lowest possible rate consistent with earning a fair rate of return upon the money which the security holders had invested to make the service possible.

Illumination Subject of Talks in Colorado Springs

A series of lectures dealing with proper illumination were delivered before a number of meetings held in Colorado Springs, Colo., recently by J. T. O'Day, illumination engineer for the Edison Lamp Works of the General Electric Company. The lectures dealt with the illuminating problems of business men, manufacturing plants and households.

The program of addresses included one before the Rotary Club of Colorado Springs and before the Advertising Club of that city. A public meeting was also held, to which all of the residents of the city were invited.

On Oct. 5, the Spokane, Wash., office of the General Electric Company gave a dinner at the Davenport Hotel, attended by the leading men of the electrical industry in Spokane. S. E. Gates, the local manager of the company, presided, and introduced as speaker of the evening, E. C. Fellows, motor specialist of the Seattle office, who gave an illustrated talk on the subject of recent improvements in General Electric motors. Among the guests were L. M. Simpson of the Grangeville Light & Power Company, Grangeville, Idaho, and several officials of The Washington Water Power Company, including J. E. E. Royer, assistant to the general manager; Lewis A. Lewis, sales manager; V. H. Greisser, chief engineer; and others of the commercial and engineering departments.

The San Francisco section of the American Institute of Electrical Engineers was addressed by Clyde L. Seavey, president of the California State Railroad Commission on Oct. 26. Mr. Seavey spoke on "Public Utility Regulation."

Manufacturer, Dealer and Jobber Activities

Woodill-Hulse Electric Company, 111 E. Third Street, Los Angeles, Calif., has been appointed southern California distributor for the Sunny line of appliances.

The Crescent Washing Machine Company, New Rochelle, N. Y., has recently brought out its new Model FF Crescent dish washing machine. This is a high speed automatic machine and contains many new and unusual features. The machine has a guaranteed capacity of 15,000 pieces per hour and is only 9 ft. long and slightly less than 3 ft. wide. It is furnished in galvanized iron, copper or Monel metal. The water capacity is 475 gal. per min. The electric motor equipment totals 5½ hp. A complete description of the device is contained in the folder which will be supplied on request by the factory.

Uhlig's Electric Store is a new contractor-dealer establishment that has recently started business in Klamath Falls, Ore. According to the cards of the new concern, "Electrical Conveniences Bring Happiness" and the motto of the employees is "Service With a Smile."

The Rome Wire Company, Rome, N. Y., has recently published two announcements dealing with Super Service welding cable and Super Service Junior cord. The pamphlets describe the uses of the conductors and give the sizes of the two products.

The Piedmont Home Electric Company has been established in Oakland, Calif., by E. V. Haines. The company has announced that it will carry a full line of electrical appliances and that it will also engage in repair work.

The American Wiremold Company, Hartford, Conn., held a sales conference at its home office Oct. 1-4. At that time field and home office representatives were in attendance and much educational discussion was presented to those who attended the conference. George A. Gray, of the George A. Gray Company of San Francisco, and Pacific Coast representative of the American Wiremold Company, was among the men that were present during the discussions.

The Crysteel Works of the Benjamin Electric Manufacturing Company, Chicago, Ill., has recently prepared a bulletin which deals with the art of porcelain enameling of steel. The booklet is entitled, "Crysteel, How and Where." The story, of how the enameling is done, the crude materials that are used, the operations that are involved and finally a list of products that are obtained, is presented in a most attractive manner. The booklet may be obtained by addressing the manufacturer.

The Hisey-Wolf Machine Company, Cincinnati, Ohio, has recently published Bulletin No. 1305. This booklet supersedes Bulletin No. 1304 and is devoted to "Hisey" ball bearing grinding machines manufactured by the company. A full description of the various types of machines is given in the bulletin. Copies may be secured by addressing the manufacturer.

The **Apex Electrical Distributing Company**, Cleveland, Ohio, is conducting a new type of sales contest among its salesmen. The new contest is covered by rules which give credit for sales in proportionate amounts to the down-payments that are secured on all sales. The contest started in September and will last until November. Prizes will be awarded each month according to the total amount of the down-payments that the salesmen report.

The Butte Electric & Manufacturing Company, of San Francisco, will after Nov. 1, occupy its new reinforced concrete building at 956 Folsom Street, in that city. The concern has been located at 534 Folsom Street for a number of years.



According to the photographer who took this picture, J. J. Agutter of the J. J. Agutter Company (left), and Fred J. Larkin of Garnett Young & Company, had just reached a deadlock on the question "Is It Wetter in Portland or in the Winter?" when the trigger was released. The photograph seems to say that Mr. Larkin has put a good point before Mr. Agutter over which the latter Seattleite is for the moment stopped. The roll under Mr. Larkin's arm contains the comparative data on the subject under discussion.

The American Spiral Pipe Works, Chicago, Ill., has recently published Catalog No. 22. This catalog is devoted to a description of Taylor's spiral-riveted pressure pipe. In this booklet there is contained a quantity of material showing applications of the product giving a comprehensive idea of the adaptability of the pipe. Price lists on the line are included in the catalog.

C. Brandes, Inc., has recently placed on the market a loud speaker radio receiving apparatus which is to be known as the Brandes Table-Talker. The reproducing unit is substantially of the same design as that used in the company's headset unit. The new piece of apparatus is finished in a deep brown with a crystalline finished horn and oxidized copper base.

C. W. Flack, who some time ago bought the electrical contracting and supply business of the Stewart Electric Company of Bellflower, Calif., is now located in new quarters at 729 Somerset Avenue in that town.

Edward G. Herbert, Ltd., Levenshulme, Manchester, England, has recently placed on the market a new hack saw, sawing machine and saw grinding machine. The saw and sawing machine are designed for high speed work. All three devices are discussed in a recent catalog of the firm.

The Link-Belt Company, Chicago, Ill., has recently purchased the Meese & Gottfried Company of San Francisco, Los Angeles, Seattle and Portland. For the past ten years the Link-Belt Company has been distributing its products on the Pacific Coast through its subsidiaries, the Link-Belt Northwest Company of Seattle and the Link-Belt Pacific Company of San Francisco. The recent consolidation of distributing and manufacturing facilities will be used in serving the Pacific Coast market. The new organization will be known as Link-Belt Meese & Gottfried Company. Headquarters will be maintained at San Francisco. The officials of the new company will be Charles Piez, chairman of the board; B. A. Gayman, president; Harold H. Clark, vice-president and sales manager; Leslie W. Shirley, treasurer, and Richard W. Yerkes, secretary.

The United Electric Company, Canton, Ohio, manufacturer of the Ohio vacuum cleaner, has recently prepared a new set of attachments for use with the Model 5 Ohio cleaner. The new set of attachments is composed of nine cleaning tools as compared to seven tools in the set displaced. The new list includes a nozzle attachment, hose, fiber connector tube, two-piece fiber extension tube, suction tool, brush tool, blower attachment and rubber crevice tool.

The Killark Electric Manufacturing Company, St. Louis, Mo., has recently placed on the market a radio frequency amplifying transformer. The device is claimed to be of a different nature from any that are now on the market. The new radio frequency amplifier is designed for use with a loop antenna and is made in three different types for one, two or three stages of radio frequency amplification.

The Automatic Electric Heater Company, Warren, Pa., has recently brought out a new device for controlling automatic electric water heaters. The new apparatus is known as the Clark selective load control and is designed to control the maximum demand of domestic installations. The control unit is adjustable from any demand between 2 and 6 kw. and when attached to the automatic water heater regulates the total demand. When other electrical devices operating on the same meter with the water heater bring the total demand up to that for which the regulator is set, the water heater is automatically cut out until this demand is reduced. When the demand is again lowered the water heater is automatically cut-in. Water heaters which provide storage will keep a sufficient quantity of water to carry the user over the period when the peak cuts the water heater out of service. The claims of the company are that with this device the demand of the customer will be made more constant than if the water heater were allowed to remain on the line at all times. The company also manufactures the Sepco automatic electric water heater.

Personals

Norman Read, vice-president and general manager of the Colorado Power Company, has been elected to succeed to the presidency of the Rocky Mountain division of the National Electric Light Association at the close of the present fiscal year, June 30, 1924. The



NORMAN READ

election was held at the recent annual convention of the division in conjunction with the Colorado Public Service Association at Glenwood Springs, Colo. Mr. Read is a past president of the latter association and has served as vice-president of the Rocky Mountain division for the past two years. Although a native of England, Mr. Read received all of his education in Colorado, graduating from the University of Colorado as an electrical engineer in 1905. The same year he entered the service of the old Denver Gas & Electric Company where he remained for two years in the engineering department. For a short time he represented the Nerst Lamp Company in the Rocky Mountain territory. In 1908 he became a consulting engineer in Denver, specializing in hydraulic design and construction work, and remained in an independent capacity until 1910 when he was appointed assistant superintendent of power of the Denver Tramway Company. Later, when serving as superintendent of power and electrical engineer for that company, he resigned to become assistant general manager in charge of operations of the Colorado Power Company. In November, 1916, he was elected vice-president and general manager of the company and holds that position at the present time. Mr. Read is a past chairman of the Denver section of the American Institute of Electrical Engineers and is now a member of the executive committee of the national technical section of the National Electric Light Association. He also holds membership in the Denver Club, the Cactus Club, and the Denver Civic & Commercial Association.

E. A. Kneip, electrical dealer of Lancaster, Calif., was recently in San Francisco.

F. N. Averill, president, Fobes Supply Company, Portland, Ore., is a recent visitor to the San Francisco offices of the firm.

E. W. Green, of the Edison Electric Company, Indianapolis, Ind., was a recent visitor to San Francisco.

W. H. Whiteside, of the Westinghouse Electric & Manufacturing Company, Los Angeles, Calif., was recently in San Francisco on business for his firm.

F. B. Gleason, formerly San Francisco district manager and now general telephone sales manager of the Western Electric Company, was recently in San Francisco. He accompanied Charles G. DuBois, president of the company, on a visit to the Pacific Coast branches of the firm.

W. R. Wallace, chairman of the irrigation and drainage committee of the Salt Lake City Chamber of Commerce, has been appointed by the board of governors of the Chamber of Commerce to cooperate with the commissioners of Salt Lake County, the Salt Lake County Farm Bureau and agricultural interests in the development of reclamation in Salt Lake County.

Prof. E. E. F. Crighton, research engineer of the General Electric Company, visited Salt Lake City, Utah, recently. Professor Crighton gave a very interesting talk before the Utah chapter of the American Institute of Electrical Engineers, in which he set forth some of the latest theories and developments in connection with lighting research work and continuity of electric service.

E. W. Martin has been appointed Chicago district manager of the Valley Electric Company of St. Louis, Mo. Mr. Martin was for some time with the Westinghouse Electric & Manufacturing Company.

C. L. Krentz has been appointed as a member of the Chicago sales force of the Valley Electric Company.

Homer M. Hadley, Seattle, Wash., structural engineer, recently sailed for Japan to investigate the effect of the earthquake upon the many concrete modern structures in that country. Mr. Hadley, who was formerly structural engineer for the Seattle school district, is a specialist in reinforced concrete construction.

Mortimer E. Cooley, dean of the College of Engineering and Architecture of the University of Michigan, announced his resignation as president of the American Engineering Council of the Federated American Engineering Societies at the meeting of the Executive Board of the Council held in Rochester, N. Y., Oct. 12. Dean Cooley, in presenting his resignation to the Board, said that he retired on account of ill health. He also made it known that he had been granted leave of absence by the University of Michigan for the second half of the academic year 1923-1924.

H. G. Overbeck has resigned as assistant manager of the electrical department of the Mine & Smelter Supply Company at Denver, Colo., to represent the Meadows Manufacturing Company in the Rocky Mountain territory. The Meadowlark washing machine will be featured, with Denver distribution established at the Headrick Electric Co.

J. O. Presbrey of the Ivanhoe Regent Lamp Works of the General Electric Company, Cleveland, Ohio, was a recent visitor to San Francisco.

C. S. MacCalla, widely known in the electrical field of the Pacific Coast states through his long connection with the Washington Water Power Company, Spokane, Wash., and more recently vice-president and general manager of the Virginian Power Company, Charleston, W. Va., has been elected vice-president and general manager of The Pennsylvania-Ohio Electric Company, and The Pennsylvania-Ohio Power & Light Company and other subsidiaries, succeeding Garrett T. Seely, who has resigned the presidency and general managership of the Pennsylvania-Ohio companies.

Warren H. Williamson of the Los Angeles Gas & Electric Company, Los Angeles, Calif., was a recent visitor to San Francisco in the interests of his company.

C. A. Maydwell, president of Maydwell & Hartzell, Inc., recently visited Los Angeles on a trip investigating business conditions in that territory and also relative to establishing a branch at that point.

W. H. Ude was appointed director of public relations of The Washington Water Power Company, Spokane, on Oct. 1, 1923. The position is a newly created one and Mr. Ude is the first to hold it. He was born in St. Joseph, Michigan, Oct. 30, 1879, and spent the first part of his life in that state. After graduating from high school in Dearborn, he entered the service of the Flint & Pere Marquette Railroad and for the next five years held various positions with that company. In 1903, he entered the employ of the Northern Pacific Railway at Tacoma, Wash., and on July 1, 1905, he was promoted to the position of traveling passenger agent, with headquarters at Spokane. On March 1, 1909, he was advanced to the position of city passenger agent and on July 15, 1918, was selected by the various rail-



W. H. UDE

ways serving Spokane to take charge as agent of the Consolidated Ticket Office under the U. S. Railroad Commission. When the federal control was discontinued, April 1, 1920, Mr. Ude became general agent of the Northern Pacific at Spokane, and held that position until Feb. 1, 1923. On that date he was advanced to the position of assistant general passenger agent, with headquarters in Chicago. He resigned Oct. 1, 1923, to become director of public relations with The Washington Water Power Company.

James R. Cravath, consulting engineer of Chicago, Ill., has moved to Richmond, Calif., and is now president of the Pioneer Electric Company of that city. In addition to the above connection Mr. Cravath will do some consulting engineering work.

Paul M. Rainey, sales development manager of the Western Electric Company, New York City, was a recent visitor to the Pacific Coast. Mr. Rainey visited all the branch offices of the Western Electric Company in that territory.

Frank Mills, formerly salesman for the Electric Appliance Company, San Francisco, Calif., has been appointed as city salesman for the Allied Industries of that city.

C. N. Stannard, vice-president and general manager of the Public Service Company of Colorado, is in New York on business for the Doherty company. He also attended the American Gas Convention at Atlantic City early in October.

Philip S. Biegler, for the past two years associate professor of electrical engineering at the State College of Washington, Pullman, Wash., has been appointed professor of mechanical and electrical engineering at the University of Southern California, Los Angeles, Calif. Professor Biegler was employed on the Little Falls hydroelectric plant and transmission line work for The Washington Water Power Company in 1909 and 1910. Later he was professor of electrical engineering at the University of Montana and for five years



PHILIP S. BIEGLER

assistant professor at the University of Illinois, in charge of electrical laboratories. During the war he left the teaching work to become associate editor of Electrical World in New York City, but returned to the West in 1921 to resume university work. Professor Biegler has published results of research work in deep-well pumping and street lighting. He is a graduate of the University of Wisconsin and had four years experience in various departments of the Commonwealth Edison Company, Chicago, before coming West.

T. H. Dukelow, of the Southern California Edison Company, Los Angeles, Calif., was recently in San Francisco on business for that company.

Ben M. Maddox, of the Southern California Edison Company, Visalia, Calif., recently visited San Francisco on business.

R. G. Grebhill has sold his interest in the Thor Shop, Denver, Colo., to enter the appliance business in California. He has been succeeded by Andrew Stayert, a prominent auto accessory dealer in Denver.

William B. Milliken, special representative of Landers, Frary & Clark, New Britain, Conn., is demonstrating the new Universal washing machine in the Rocky Mountain territory. Mr. Milliken was formerly representative in this territory for the Gillespie-Eden Company.

H. C. Hopkins has relinquished his duties as advertising manager for Majestic Electric Appliance Company, to devote his entire time to the interests of Westgate Metal Products Company of Oakland, Calif.

R. L. Pawling has been made chief operator at the Vestal substation of the Southern California Edison Company, having been advanced from the position of first operator at Venida.

F. C. Robinson of the Southern California Edison Company was a recent visitor in San Francisco, having been there on business for his company.

H. H. Courtright of the Valley Electrical Supply Company, Fresno, Calif., was recently in San Francisco.

E. B. Criddle, of the Southern Sierras Power Company, Riverside, was a recent San Francisco visitor.

Nate C. Harvey, vice-president and general manager of the Illinois Electric Company, Chicago, Ill., is in Los Angeles, where he will remain during the winter season.

Dean K. Chadbourne, of the Westinghouse International Company, left on the Siberia Maru, with Mrs. Chadbourne, on Oct. 22 for a trip of seven or eight months to the Orient. Mr. Chadbourne is manager for the Far East and will visit Japan, China, the Philippines, Australia and New Zealand. He is making the trip especially to establish new agents and connections in the far eastern territory and to assist in the electrical reconstruction of Japan. Before sailing, Mr. Chadbourne stated that his company has already received from Japan since the earthquake orders totaling over \$2,000,000 and including switching equipment, transformers, and several hundreds of motors.

C. G. DuBois, president of the Western Electric Company, New York, and Paul M. Rainey, sales development manager of the Western Electric Company, New York, were recently in Los Angeles and were entertained at a banquet in their honor at the Biltmore Hotel.

Nels N. Nelsen, builder of all-electric homes and apartments in Fresno, Calif., has moved to Los Angeles, Calif., where he will engage in a similar line of effort. Mr. Nelsen has incorporated in his homes all the latest electrical appliances and conveniences and has won a name for producing houses of ready salability.

R. G. Gentry, commercial manager of the Public Service Company of Colorado, was a member of Mayor Benjamin F. Stapleton's party during the inspection of a natural auditorium in the Park of the Red Rocks near Denver. A plan is on foot to acquire this mountain auditorium for the city for concerts and outdoor operas. Mr. Gentry recently was elected first vice-president of the Lions Club of Denver.

Obituary

Leonard Eugene Voyer, assistant sales manager of the Edison Lamp Works in San Francisco, Calif., died of pneumonia on Oct. 27. Mr. Voyer was taken sick on Sunday, Oct. 21, but was confined to his bed only from Tuesday



LEONARD EUGENE VOYER

until the time of his death. Mr. Voyer was born in Junction City, Wis., in 1887 and was graduated from the University of Wisconsin with the degree of Bachelor of Science in electrical engineering in 1911. He entered the students' training course of the Edison Lamp Works of the General Electric Company on Aug. 1, 1911 and was connected with the Harrison, N. J., office of that concern until 1914 when he came to the San Francisco office. At the time of his death, Mr. Voyer was in addition to being assistant sales manager of the San Francisco office, the street lighting specialist for the San Francisco territory. Mr. Voyer was a member of the San Francisco Bay Cities chapter of the Illuminating Engineering Society and also of the San Francisco Electrical Development League. Mr. Voyer is survived by his wife and a daughter of six.

Robert B. Watts, of the firm of B. C. Watts & Company, Denver, Colo., dropped dead in that city on Oct. 11. Death was declared due to heart trouble. Mr. Watts was born in Louisville, Ky., and had lived in Denver for about ten years.

Henry E. Bothin, a director in the Pacific Gas and Electric Company, died suddenly at Santa Barbara on Oct. 14. In addition to his connection with electrical business he was also a director in the Natomas Company, the Sausalito Land & Ferry Company, the East Bay Water Company and the Judson Manufacturing Company.

The death on Sept. 30 of Walter S. Draper, assistant city electrical inspector for the City of San Diego and a pioneer electrical man there, is a personal loss to his legion of friends in that city. Mr. Draper came to San Diego from Indiana some 20 years ago. For many years he was wireman and in charge of fixtures for the Hartwell Electric Company, and afterward foreman and superintendent for the same concern. He went into business for himself some time later.

Trade Outlook

San Francisco

Fall buying is increasing and jobbers report deliveries at about normal. Retail trade lags somewhat but total volume exceeds that of a year ago and conditions seem to indicate steady improvement. Collections are reported to be satisfactory. Several new factory sites are being sought and those new industries already established report satisfactory progress. Some damage has been done by the rains but there is no serious reaction. Crop prices are favorable and shipments regular. Higher prices are quoted for dried and canned fruits and vegetables and money advanced against crops is now returning to be used for industrial purposes. The Japanese disaster has brought about the absorption of the entire old crop of rice and harvesting of the new crop is about under way.

Portland

During the first nine months of 1923 Portland building permits exceeded the high record of 1922 by nearly one and a half million dollars and this city was third among the Pacific Coast cities. The demand for all classes of construction remains firm.

The Port of Portland is making new records almost daily in the volume of cargo handled. The domestic in and out bound water business of the past nine months had a value of \$133,401,997, an increase of nearly \$41,000,000 over the same period of a year ago. Wheat, flour, lumber and apples are moving out of this port in record-breaking amounts. It is estimated that a million boxes of apples, mostly from the mid-Columbia orchards, will be exported to the United Kingdom and northern Europe this year.

About 40 per cent of the lumber shipments are moving by water. Production of lumber shows no signs of slackening. The rate of production is now 27 per cent above normal with prices firm. No noticeable increase has appeared in Japanese buying.

The power companies are very busy with extensions and are generating about 15 per cent more energy than a year ago. Ranges are moving well.

The prospects for a big holiday trade are excellent.

Seattle

Fall jobbing and retail trade are expanding, but caution and conservatism rule in buying, immediate needs governing new purchases. Future buying is evidently under the checkrein of price uncertainty, just as last spring, fall trade was in doubt. A continued drop in material prices is noted by electrical jobbers, these decreases being especially noticeable in conduit, wire and certain schedule materials. It is believed that the end of the decline in prices on this class of merchandise is not yet in sight. Business in the electrical jobbing field is good, with stocks in fine shape and easily maintained. Shipments from eastern factories are coming through

very satisfactorily. There has been a heavy demand for electric heating appliances during the past two weeks of colder weather, particularly of the small portable heater. Electric ranges are moving well, while the demand for washers is holding up.

The lumber market continues extremely active, with fall needs running into substantial volume, and asserting a strengthening influence on prices, especially in view of the low stocks. A large number of Northwest lumber mills are running night shifts to supply the lumber demand.

Construction work continues active in nearly all lines, residence building being particularly heavy. A number of business buildings, stores and apartments are under way, and the outlook for fall building is encouraging.

Salt Lake City

Improvement in business conditions throughout the intermountain territory continues.

The Columbia Steel corporation is making rapid progress in the construction of its plant at Ironton, near Provo, Utah, and is expected to be in operation by Feb. 1, 1924. This company's activities, including the utilization of vast deposits of iron ore which exist in Utah, are expected to develop an immense industry for the intermountain section, which is sure to result in general industrial expansion, new homes, and additional population.

In the agricultural districts good crops have been harvested, and with fair prices the farmers will have little cause for complaint. The sugar beet situation is particularly favorable. Utah has won second place in the production of sugar beets in the United States by increased acreage, and favorable contracts exist between the sugar companies and the beet growers, with the result that the season will undoubtedly be very successful.

The mines are continuing to produce a large output, although the price of silver has had a slightly unfavorable effect in some localities. The price of copper has caused no reduction in the output of the Utah Copper Company.

Building activity continues, and is expected to do so until winter weather slows it up.

Spokane

The unusually large wheat and fruit crops, which have been moving during the past few weeks have presented a problem for the railroads of the Inland Empire and they have met all demands. This condition has kept the four railroad shops in Spokane working at full capacity on single shift.

While construction work continues at a rather modest level, the conditions for the coming year are expected to be exceptionally good, with a large amount of road work in prospect for eastern Washington, and much new building construction for the Inland Empire. The local lumber dealers have already felt

an increase in demand from eastern points, this being attributed to the recent diversion of lumber from Coast mills to Japan.

During the past six months, five new factories making frame and sash have been put in operation in Spokane, and construction of two additional plants has been announced. Much of the product is shipped to the middle-west and Atlantic Coast. This is an interesting example of the tendency for finished wood products to be made on the Pacific Coast and it indicates the growing importance of the West as a manufacturing region.

Mining conditions continue to be good. The announcement that one of the smelting companies of Montana is contracting for 5,000 tons of zinc ores per month will stimulate activity in the mining of zinc in the Coeur d'Alene district.

Denver

Building operations in the larger cities of this region are still continuing at record figures. Reports for September have established new high marks and on Oct. 18 the total permits taken out in Denver during the present year passed the record figure established for the entire year 1922. So far the permits this year amount to \$18,134,850, which is greater by \$118,755 than the permits issued during the previous year. October permits have already passed the two million dollar mark.

Expected increases in quotations on electrical supplies, especially steel products, have not materialized. Wire and conduit are moving steadily and demand for schedule materials is not slackening. Local jobbers are working on several big transmission line projects.

Lamp and reflector business is brisk. Christmas orders for appliances are commencing to come in. Several large washing machine manufacturers are launching special campaigns in the territory. Radio sales are picking up.

Los Angeles

Manufacturers report excellent business prevailing with shipments becoming better and with deliveries improved. Wholesalers of electrical apparatus and devices report increased business due to fall and Christmas trade and this is expected to continue during the coming month. Business in supply lines consisting of conduit, wire and wiring devices continues excellent, due to the enormous amount of building construction. Retailers report business better than two weeks ago with a very bright outlook for the coming months. This is true of electrical retail stores and department stores and others handling electrical appliances and devices. Radio business, which suffered a slight slump during the past month, shows improvement, and steady improvement is expected during the coming months owing to the Christmas trade.

For the two-week period ended Oct. 15, 1923, building permits amounted to \$10,281,758, which is approximately double that of the corresponding period of last year. Bank clearings for the same period amounted to \$303,887,377.25, an increase of approximately 45 per cent over the corresponding period of a year ago.

Journal of Electricity

25 Cents a Copy

November 15, 1923

San Francisco

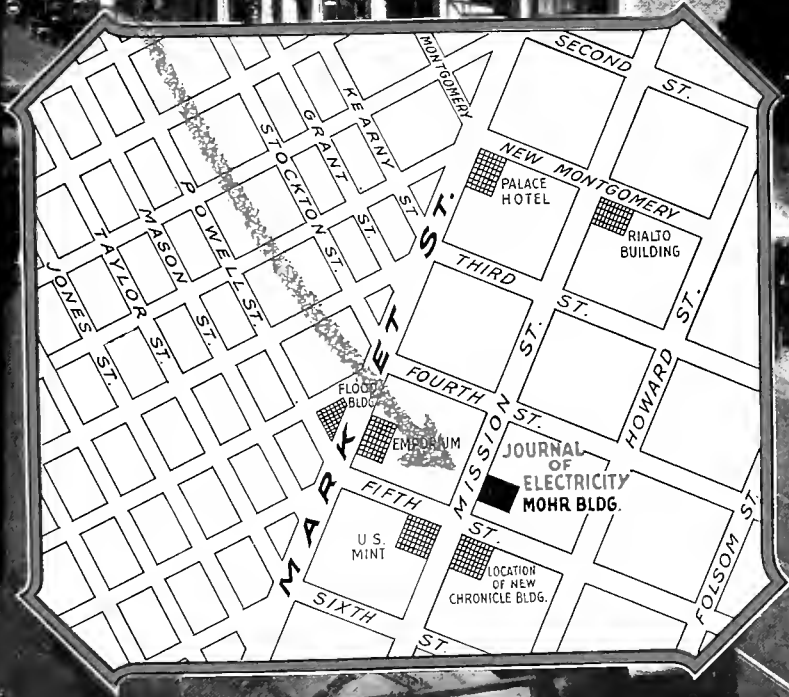
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Here's an incident worth looking into



WE'VE always tried to make clear the difference between non-burning Rockbestos and ordinary insulation. But perhaps more convincing than any statement we could make is the experience of Mr. William Deans of the Sundh Electric Company, Newark, N. J. He has advised us:—

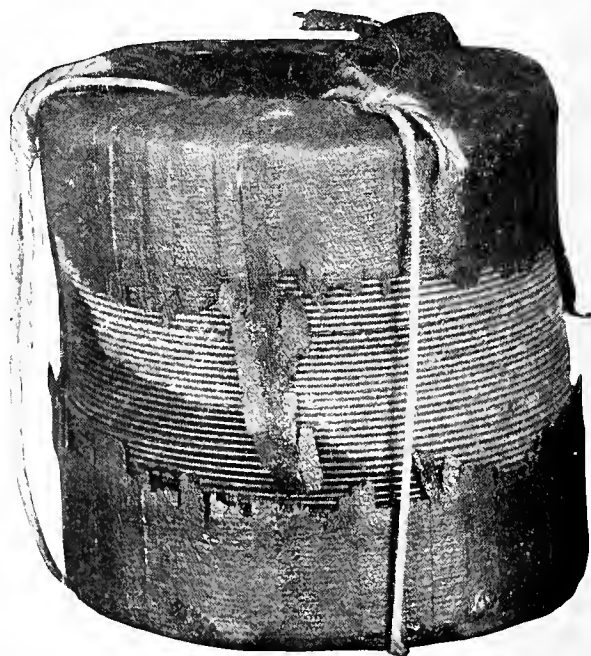
"We wound a coil with Rockbestos Magnet Wire and taped it up with ordinary cotton tape. It was put on an A. C. Magnet Switch of an Automatic Starter.

"Recently, after giving uninterrupted service for some time, for some reason or other, the coil became so overheated that the outer covering of tape was burned to a crisp. The crisped and broken strips of tape got in the way of the magnet, and put the starter out of commission.

"We removed the coil, tied it up so the burned tape would not hinder its operation, and gave it a resistance-test. We were extremely pleased to see that it stood up to practically the same resistance as originally rated (about 5 ohms).

"Unless we had made this test ourselves we could scarcely have believed that any magnet wire could come through such an overheating as burned off that tape without being damaged. But Rockbestos certainly did. You win."

Rockbestos is insulated with pure long-fibre asbestos and will not burn, crack, crumble or deteriorate with age. There's a type of Rockbestos for practically every purpose—Magnet Wire, Switchboard Wire, Heater Cord, Stove Wire, Motion Picture Cable, and Fixture Wire. And any knotty problem in wiring you're up against, our Engineering Department will be glad to help you work out.



Coil used on A. G. Magnet Switch of an Automatic Starter. This photograph shows the condition of the coil after it had become so overheated that the outer covering was badly charred and burned. However the Rockbestos insulation on the wire had not been damaged. Read Mr. Dean's description!

Just tell us what you want—whether it's samples and prices on Rockbestos or expert advice,—and your request will receive immediate attention.

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Journal of Electricity

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G. W. BARKER, Associate Editor

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G. C. TENNEY, Managing Editor

ROBERT SIBLEY, Consulting Editor

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Electrical Merchandising

Power

How About Your Christmas Window Displays?

EVERY successful merchant knows the value of his display windows to his business. It is the custom of large department stores to place a dollars-and-cents advertising value upon these mediums for the display of goods and to levy this sum against each department that uses the windows. From the appearance of the windows of some electrical dealers we are inclined to believe that they have yet to learn the actual worth of their windows.

Every branch of the electrical industry is making plans to secure an increased volume of Christmas trade this year. Slogans have been written, advertising material prepared, window cut-outs planned, all with the idea of aiding the retailer to make this a truly electrical Christmas. Manufacturer, jobber and cooperative organization have taken the initiative in this work. Never has there been such a supply of choice window display material at the disposal of the retailer.

We would be inclined to place the dealer who fails to recognize the opportunity which this material affords, in the same class as the man who thinks Sodom and Gomorrah are man and wife and that the epistles are the wives of the apostles. However we feel certain that there will be no need for this classification. Reports indicate that the Christmas windows of the electrical trade this year will rank well up among the best of every other class of retail merchant.

If you have a window of which you are particularly proud, have it photographed. Send a print to the *Journal of Electricity* and we will gladly reproduce it in our columns. We want to prove that our declaration that the electrical retailers' Christmas windows will be among the best is something more than pure optimism.

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was the first non-metallic conduit to be packed in boxes for your convenience. We can furnish it either 1,000 feet to a box, or 250 feet to a carton, whichever you prefer. The small cartons are rugged enough to stand rough handling without any additional protection.

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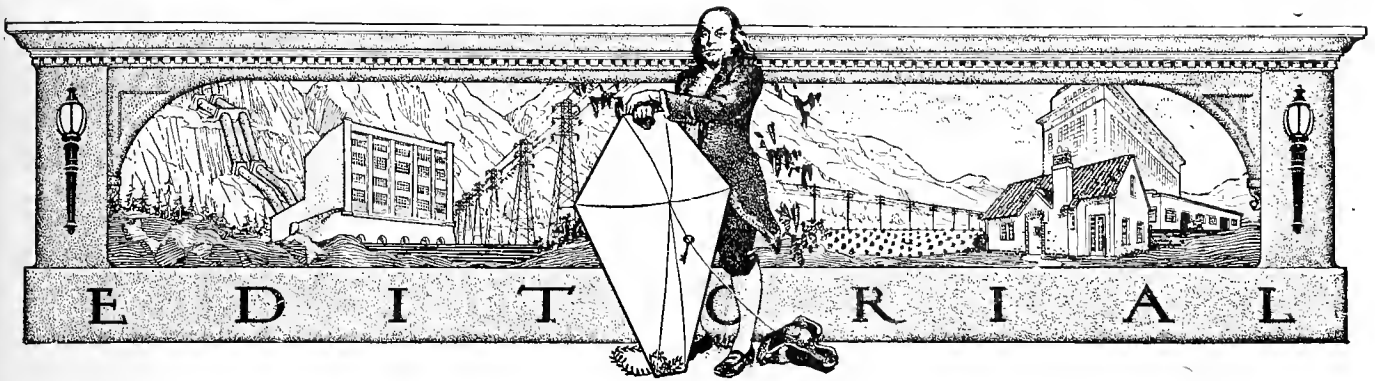
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Seeing Ourselves as Others See Us

THERE are times in the conduct of any business, especially big business, when it gets into a rut. Executives seem to go stale, and the staleness passes on down the line so that it penetrates the entire organization. The older men, who have begun their careers with all the vigor and vim and enthusiasm of youth, seem to relax. They have caught their car, and seem inclined to rest, and let the business coast, actuated by the momentum imparted by their youthful push and determination.

THEN is the time for the board of directors to take action to ward off the threatening dry rot, and, as a usual thing, they go after new blood; they seek an outside viewpoint, some red corpuscles with which to invigorate the sluggishness of the business arterial system.

THE whole system of distribution for electrical appliances, the marketing end of the industry in the Pacific Coast territory is now undergoing a microscopic analysis at the hands of an outsider, Mr. E. A. Kincaid, whose second article appears in this issue. Mr. Kincaid

has no affiliations with any branch of the industry; he is a dispassionate observer, a diligent seeker for truth, who has approached the problem in a judicial frame of mind as a diagnostician who must discover what is weak and defective, and then prescribe a remedy for the purpose of effecting a cure.

CAREFULLY considered, intelligently directed criticism is good for us, all of us. "Spare the rod, and spoil the child," was the doctrine of the old-fashioned mother, even though it hurt when administered. Did not Bobby Burns say, "O, wad some Power the giftie gie us, to see oursels as ithers see us"? To those to whom careful criticism is worth more than casual compliment, Mr. Kincaid's articles will prove of constructive benefit. For those who travel upon a plane so high as to be above and beyond criticism, little can be done. We have no hesitation in recommending to all of our readers a thoughtful study of Mr. Kincaid's series, for we regard them as the most useful editorial material offered through the columns of this paper in a long time.

The Vindication of an Important Utility Doctrine

HERMAN E. CRIST, mayor of Fort Lupton, Colo., recently entered the race for public office and was elected on a public utility platform. Mr. Crist accepted for himself and advocated to other public officials the same policies which govern progressive public service organizations in the conduct of their business and in their dealings with the people. Some of the planks from Mayor Crist's platform will bear close scrutiny for they are, indeed, enlightening. We quote from his pre-election statement:

"I believe a city should be conducted as the public utilities are now conducting their business. Some years ago we all were, more or less, suspicious of our public utilities. That was because we knew so little of their business. But in recent years the utilities have pursued a policy of publicity of their acts and since then, we have come to feel we have a personal interest in their affairs and they in ours."

Referring to himself and other officials of the town, he said: "We are the authorized agents of the citizens of this town. The people have a right to know everything in connection with the conduct of their business. By taking the people into our confidence and advising them of our acts, we obviate suspicion and create a feeling of trust, just as is being done by the public utilities. We are all partners in the concern—our town—and, as such, are entitled to the fullest information."

Public utility officials and executives might well pause and consider this last statement from the mayor of this little agricultural and manufacturing city. His are words of wisdom. "By taking the people into our confidence and advising them of our acts, we obviate suspicion and create a feeling of trust." A splendid doctrine, this, and one which the utilities themselves are preaching. But they must do more than preach. The utilities must practice this doctrine every day, in every department.

The American people are sportsmen. They are receptive. If the utilities do their job and do it well and then tell the people about it, they will receive support. Had the platform of the mayor of this Colorado city failed to strike a responsive chord in the minds of the people, he would not have been elected. The deduction is simple. He was right. So, then, are the utilities.

Old Lamps for New

AS a rule the power companies are regarded as the big brothers of the electrical industry. Perhaps the relationship is more paternal than fraternal, at any rate, it is taken for granted that any other branch of the trade, when in need, may send out an S.O.S. and help will be forthcoming as a matter of course.

A short time ago the San Diego Consolidated Gas & Electric Company conceived the idea of placing at the disposal of the trade the use of its main-office windows for the purpose of displaying any gas or electric appliance. The space was available for

one week, without charge, to any dealer desiring to take advantage of the opportunity for cooperative advertising.

The project met with instant favor and why not? It gave a splendid opportunity for the display of the latest and best of electrical and gas appliances, fine publicity, quickening public interest, and more business, to say nothing of the additional feature of no cost to the exhibitor.

But wait! The plot is about to thicken, to get very thick indeed. It is early morn. A truck from one of the local hardware stores draws up at the curb. A horny handed son of toil, after lubricating his hands in the conventional manner, proceeds to unload his precious cargo of exhibits. What is it, or rather, what are they? They look neither electrical nor gaseous. On the other hand, they look, nay, they actually are oil heaters, OIL heaters, intended for exhibition in the free space given by a producer of electricity and gas for the purpose of promoting his business and who is now reading with philosophic resignation Æsop's fable about the man who warmed a snake in his bosom.

The American Red Cross— A Timely Reminder

LET us not in the hubbub and turmoil of our daily business forget the American Red Cross. This humane agency, always ready in time of need, has accomplished great things. Recent events have shown its constant state of preparedness and its ever-present desire to serve the people, not of America alone, but of the entire world. Like any other organization dedicated to service, it must have funds for its operation. Nov. 11-30 has been designated as the time when the American people can show their appreciation for this noble organization by contributing to its financial support. Let this serve as a reminder that each of us should do his part.

At Last—an All- Electric Apartment House

YEARs of pioneering effort and countless thousands of dollars spent on educational work,—all for increasing the popularity and use of electric household labor-saving appliances,—are at last beginning to bear fruit. The attention of architects and builders has been directed toward the superiority of electric cooking, the practicability of electric air and water heating and the necessity for sufficient convenience outlets. Advertising, literature, electric home demonstrations and personal calls have been used in an effort to impress upon them the many conveniences that electricity affords. A few of the more bold have constructed electric homes. Many have incorporated these ideas in apartment houses. But there has never been a real "electric apartment house" in the fullest sense of the word.

After all these years, comes word from Los Angeles that there is being constructed in that city an apartment house with accommodations for 170 families—an apartment house which will be com-

pletely electrified, with range, refrigerator, dish washer, water heater and air heaters in each of the apartments.

The value of such an installation to the entire electrical industry cannot be overestimated. The dollars and cents cost of the equipment noted above is \$228,000 and this does not include the fixtures or the wiring which will easily require an additional \$100,000. Approximately 2,500 kw. will be added to the lines of the company serving this load. But the greater value lies in consumer satisfaction, goodwill, personal interest. These cannot be measured in terms of dollars and cents.

Let this apartment house be considered by the electrical industry as a lasting monument to those men who have pioneered in carrying the electrical message to the architect and builder.

The Anti-Climax in Government Ownership Propaganda

CYNICAL newspaper publishers have a saying to the effect that people get as good newspapers as they deserve, and that the newspapers published in any community are an index to the character of the people who live there.

We should be sorry to believe this to be true, in fact if it were true, one could draw no conclusion other than that certain communities in this fair land of ours were populated with half-wits and morons.

Take, for example, the editorial treatment of the question of state ownership of public utilities. This is a serious subject, a subject deserving calm study, and analytical treatment. It is an economic issue and should be discussed dispassionately, judicially, in a manner free from the heat and passion of partisan politics.

Nevertheless, here are a few fairly typical headlines culled from the editorial pages of a number of pro-government-ownership newspapers:

"It is a Plot, Citizens, and You Must Watch Out," screams the editor of the Los Angeles Examiner, in coming valiantly to the defense of the Los Angeles Bureau of Power and Light.

"People Must Not Mark Time While Power Concerns Capture State," is the contribution of the Los Angeles Record to the din and clamor, and adds, "The people should pay no attention to misrepresentations of the yapping reactionaries and power trust hirelings." Another contribution from the same source, "Power Trust Fights Los Angeles in Sierra's Snows and Lightnings," paints a vivid picture of conflict under conditions that would create excitement in the offices of the United States Weather Bureau.

San Francisco and Seattle papers issued by the same publisher are repetitions of the same idea. Thus the whole Pacific Coast suffers from the editorial emetics administered by these self-appointed mentors of the public.

Are the minds of the people really affected by this sort of thing? Are the ordinarily orderly mental processes of the American people being converted to the insensate passions found in mobs? We think not, if the vote of the people on the late unlamented

California State Water and Power Act last fall means anything. Perhaps our saving grace is our justly celebrated sense of humor, and that all the laughs to be found in the yellow press are not confined to the comic supplement.

Price as a Factor in Gas vs. Electric Range Sales

A well known department store in one of the leading Pacific Coast cities has recently offered a popular type of gas range at a price and under terms sufficiently striking to warrant serious consideration by the electrical industry,—or that part of it which is concerned with increasing the sale and use of the electric range.

The range in question has four surface burners, an 18-in. oven and a broiler. The time payment price is \$57.25 and the cash price is \$54.75. The selling terms are anything from full cash to a down payment of only \$2 and the balance in twelve equal monthly installments.

Contrast this with the selling of electric ranges. Granting their superiority for cooking purposes and admitting the fact that no other cooking medium has ever offered or permitted such excellence of results, it must be conceded, nevertheless, that the element of price weighs heavily on the side of the gas range. This, and this alone, is one of the greatest impeding factors in the sale of electric ranges.

A typical electric range similar to the gas range above will cost approximately \$245, list, and will seldom be sold, even during special campaigns at less than cost, which is \$135. The terms ordinarily offered to a purchaser of an electric range are 20 per cent down and the balance in twelve equal installments. Comparisons in this case are certainly odious for with the gas range the monthly payment will not exceed \$5. Granting that there is a higher manufacturing cost to the electric range, the question still remains in our mind as to whether the difference is such that the electric range must be sold for four times the price of a similar gas appliance.

Let Electricity Make the House a Home

IN broadcasting its message for greater utilization of electricity in the home, the electrical industry is liable to slip into a rut, its story to become stilted, to lack life and conviction. Constant repetition of the same statements involving the same ideas induces a state of mind where we are inclined to get up and speak our little piece from memory in a fashion as monotonous to our audience as the recitation of the multiplication tables by a child in the fourth grade. On another page of this issue is the story of an electric home written by a woman. Her point of view is refreshing. Her ideas are distinctly new. She tells what electricity can do toward "making the house a home." If in its attempt to carry its message to the home builder and the home owner the electrical industry could but convey that wiring a house is not a "job," but that it is an art, it will have taken another step toward success.

It is seldom that anyone finds fault with the present system of commission regulation of utilities. Experience has shown this scheme of public control to be

Unjust Attack on California Commission

not only just but highly successful. In the case of the following editorial which is taken from the Fresno Republican, we are forced to believe that it was written without a full knowledge of the facts. The editorial says:

If the light and power rates being charged in a greater part of California were to be increased, by order of the railroad commission, we would all be making a great noise about it.

Let's give some credit, therefore, when the California railroad commission orders a reduction of 8 per cent in light and 14 per cent of farm power charges in 50 California towns and districts.

Even with a crippled and imperfect working, state regulation is better than no regulation.

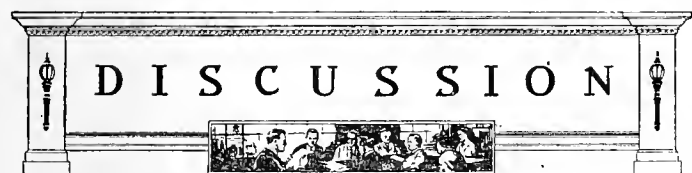
Normally, no charge would be reduced by a utility corporation unless forced by competition or by an absolute refusal of patrons to do business. In other words, the normal basis of charge would be the "all the traffic would bear" rate.

A state regulation rate is something else.

It is determined by complaints, by hearings, by schedules of costs, by engineers' reports. It is imperfect, with all the imperfection of human agencies and the penny foolish methods of state financiers. But it does help.

Let's give the railroad commission the credit of working.

The opinions expressed above are all the more surprising when it is remembered that the paper in question was formerly owned by none other than Chester H. Rowell, who until recently was a member of the California Railroad Commission.



"Standard Lighting" Book Proves Valuable for Better Illumination Campaign

To the Editor:

Sir: I am wondering if the average electrical contractor or lamp agent appreciates the value of Cushing's handbook "Standard Lighting" as a business builder. Recent experiences of this office have proven conclusively its effectiveness in bettering the illumination of a number of new buildings now under construction in this city.

The first case where the handbook had to be called into action was with a local architect who was designing a new office building for a large western life insurance company. He wanted the best illumination possible and "Standard Lighting" proved to him the type of installation to make. As a result 75 outlets were added, increasing the required wattage about 5 kw.

A church provided the next opportunity for the sale of a good lighting job, which, according to the report of our field representative, resulted as follows:

"The whole job was handled with the exclusive use of the illumination tables contained in 'Standard Lighting.' As a result the foot-candles necessary were determined along with the type of fixtures and the size of lamps.

"In consequence of this, 46 ceiling outlets, 24 switch outlets, and 11 duplex convenience outlets

were added to the job. The minimum wattage was increased 10 kw. as a direct result of the League's use of the book.

"In the case of the principal auditorium of the church, the cove lighting, for instance, was increased 4,300 watts alone. Eight supplementary lighting outlets in the auditorium were doubled in the capacity of watts and 10 balcony lighting outlets were raised from 150 to 200 watts.

"Nine basement lighting outlets were increased from 150-watt capacity each to 200, and 8 others were exactly doubled."

A standard of 10 foot-candles was established in another case, that of arranging the wiring layout and lighting of a new creamery. This building is of unusual architectural design and is located in a residence section of the city. The lighting had to be in harmony with other advanced features included in the new building and the data found in Cushing's book aided immeasurably in convincing the builder. As a result the wattage of all ceiling outlets was doubled from 150 to 300. Twenty-five outlets were added, also 12 duplex convenience outlets and 8 sets of 3-way switches, not to mention the addition of 7 ornamental brackets on the outside of the building, and incidentally a 12-station interphone system.

Of course these are outstanding examples, but they are representative and likewise indicative of the possibilities in employing "Standard Lighting" as a formidable weapon in the battle to secure better illumination.

Local architects have found the book so helpful that the League has ordered 50 copies to be presented to each of the leading firms.

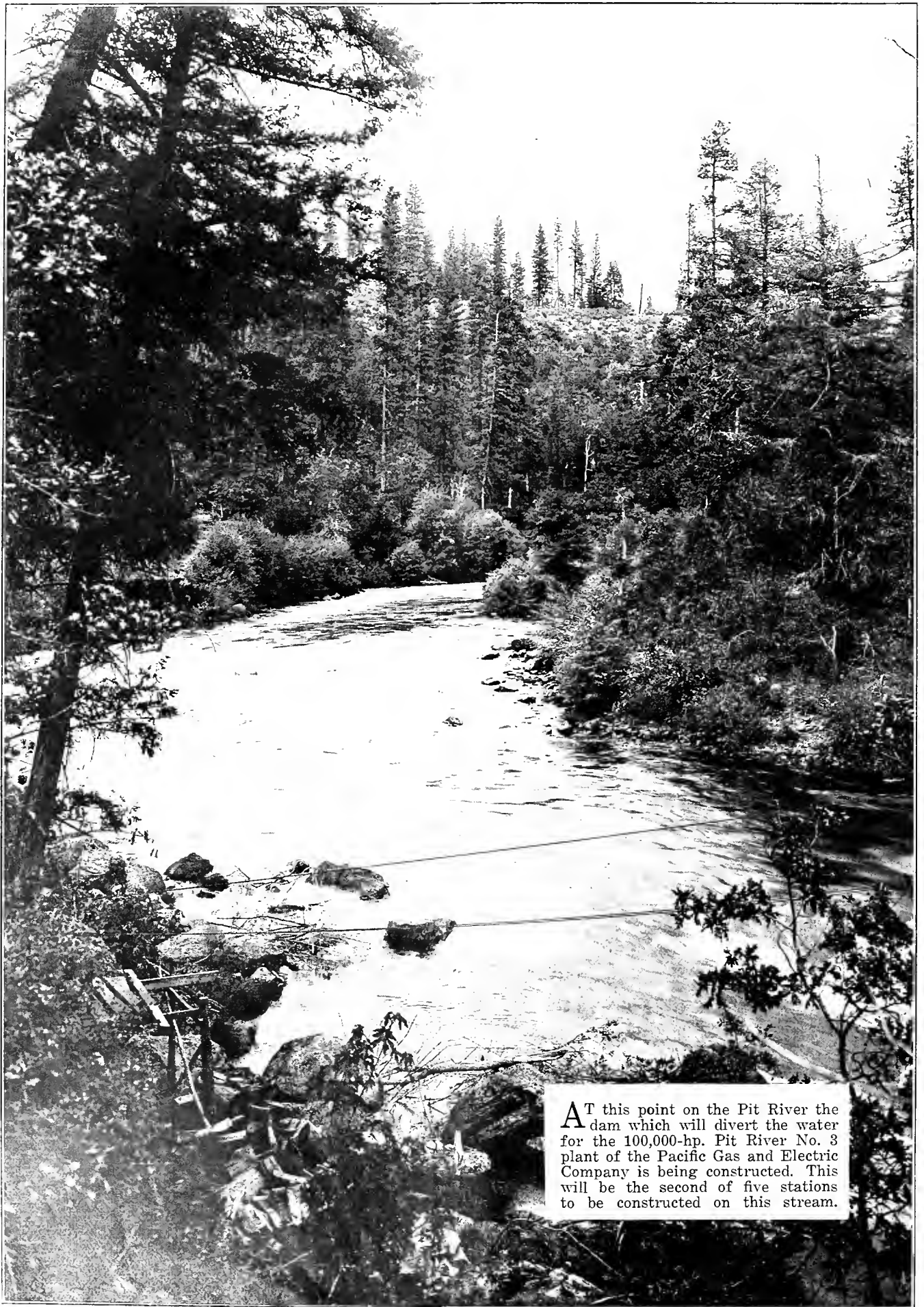
S. W. BISHOP, Executive Manager,
Denver Electrical Cooperative League.

Denver, Colo.



Armstrong in Tacoma News-Tribune.

An Electric Cooking School Called Forth This.



AT this point on the Pit River the dam which will divert the water for the 100,000-hp. Pit River No. 3 plant of the Pacific Gas and Electric Company is being constructed. This will be the second of five stations to be constructed on this stream.

The Organization of the Electrical Market on the Pacific Coast

By E. A. Kincaid

Associate Professor of Commerce, McIntyre School of Commerce, University of Virginia

AN adequate description and analysis of the method by which electrical products are now distributed on the Pacific Coast cannot be given without considering the conditions generally prevalent throughout the entire country, and particularly in the manufacturing end of the industry. For it must be said here that the conditions which characterize

the electrical market on the Pacific Coast are but the logical outgrowth of more fundamental conditions—conditions lying back—national conditions with driving forces that permeate the entire country.

Let attention now be directed to some of these basic national conditions. There has been a rapid growth of the manufacturing end of the electrical industry. New enterprises have been organized, new corporations have come into being and new inventions have been brought into an already well supplied market. Of the forty thousand patents issued annually by the United States Government a considerable portion relate to electrical devices of one sort and another. The new corporations that are organized to manufacture these new devices seek to include the value of their patents in their assets. The capitalization of these corporations is to some extent an expression of these assets and in consequence there is an effort made to break into an already well supplied market and obtain sales sufficient to permit of a return on the capitalization thus arrived at.

The competition of the numerous concerns that manufacture electrical goods of all sorts has become fairly keen. There is the effort of the older established companies to maintain their grip on the market and the assault made by new companies upon the position of those already in the field. The pressure thus placed upon the mechanism of distribution has been severe and its response has been somewhat uncertain. There has been a reluctance on the part of distributors to admit that changed conditions call for changed methods. The tendency has been for distributors to assume that distribution would go on in the future as in the past. The disposition to assume that the distributive system cannot be changed, that it is inviolate and that manufacturers must do business the way it always has been done in spite of existing defects within that system, has not placated those manufacturers who know that their chance of survival depends upon access to the market.

THE electrical industry must develop so that its foundation will be equal to its future expansion. There must be no delay for a rebuilding of this important part of the structure. On its distributive organization rests the future success of the electrical industry on the Pacific Coast. In this article Mr. Kincaid discusses some important phases in the development of the distribution system.

Thus, many manufacturers have sought entrance to the market for electrical products only to be given the impression that the doors are closed in so far as the customary channels of distribution are concerned. These same manufacturers have taken the position that if the existing distributive system would not or could not take care of additional production and provide an outlet for their goods, then other means of reaching the market must be provided through the initiative of the manufacturer. This determination to reach the market somehow, by one way or another, has resulted in throwing the distributive system for electrical products into a good deal of confusion both as to methods of distribution and as to merchandising practices.

The manufacturer who has sought access to the market for electrical products has ordinarily pursued the traditional and, what to his mind, was the logical course. That is to say he has approached the established jobber. Not infrequently the jobber has proved difficult to interest in a new product, whether new to the electrical world or new to the region which he served. The jobber, naturally, is not inclined to take on new and unknown products for which no market has been created in his locality, particularly so when already he has in stock standard goods that are nationally advertised and firmly established with the trade. Whether for this reason, or for others equally effective, the jobber has not been interested in backing the product of the new manufacturer and the latter has departed from the presence of the jobber determined to break into the market somehow—through a jobber if possible, but if not, then some other way. If no established jobber can be enlisted, then recourse is had to some jobber who is just growing out of the retail into the jobbing phases of the business. Such a jobber is apt to do business along somewhat unconventional lines. He is more than likely a bit irregular in his methods and he may not stand well with the established and regular concerns engaged in manufacturing and distributing electrical products.

It may well be that such a jobber can not be found. If not, then the manufacturer may be confronted with the problem of creating a jobber. This may be accomplished by converting a retailer into a jobber, hence it is not uncommon to find concerns doing both a retailing and a jobbing business. The

latter phase of the business is at first confined to a few lines, but the tendency is to expand in the jobbing field and allow the retail end of the business gradually to expire. It is needless to say that such jobbers are not in a position to function as jobbers and provide all the services that jobbing traditions call for. One need not stop here to explain that such a jobber must, by the very nature of his situation, resort to methods that his older competitors have long since abandoned as unethical and irregular, for these matters are for present purposes quite beside the point. The fact is that new jobbers have been created by the force of competition among manufacturers for access to the market. In turn, these new, so-called jobbers have made their competition and methods felt by the older and well established jobbing houses. The force of this competition then leads both old jobbing houses and new ones to extend their contacts with their retail outlets. In consequence, both groups of jobbers have extended credits and placed goods in the hands of a multitude of individuals who are collectively referred to as contractor-dealers. Jobbers have encouraged these contractor-dealers to believe that they could merchandise electrical products, particularly appliances. The contractor-dealers have been confirmed in this point of view because of the comparative ease with which they obtain credit for the purchase of goods from jobbers.

The Contractor-Dealer as an Outlet

It is difficult to understand what relationship, if any, exists between the function of an electrical contractor and that of a merchant. On the other hand it must be remembered that electricity is a highly technical subject and that household appliances meet a high sales resistance because the housewife does not understand them and consequently views them with suspicion and distrust. It is not surprising therefore that the shop of an electrical specialist should be a natural point of contact between the housewife and the electrical industry in pioneering new devices and will continue to be so until electrical heating appliances gradually obtain the same consumer acceptance as those using coal, wood, steam or gas. The problem of servicing appliances already in use is another factor to be considered. Not a few are functioning effectively but their chances of success are affected by the fact that they must compete with many who can not exist except by methods upon which sound retail distribution of electrical products can never be developed. In an over-crowded field methods of distributing become highly disorganized and merchandising practices adjust themselves to standards which are disastrous for the electrical industry as a whole.

It may be said, with some measure of justification, that existing conditions are transitory. Perhaps they are the outgrowth of the present phase of the business cycle and the brief period of prosperity which has been ours since 1920-21. With the coming of adverse balances in our foreign trade and the movement of gold out of the country we may expect, in the not very distant future, a period of declining prices and a general slowing down of business.

It may be that the distributive system for electrical products will function adequately during a period of quietude in business and many of the fly-by-night concerns that have come into being with the building boom will disappear almost as rapidly as they have appeared. However these things may be, it is a fact that in the period of expanding business the pressure on the mechanism for the distribution of electrical products has shown serious weaknesses. The pressure upon it has been more than it could bear and we have as a result the present condition with its numerous irregularities, its unethical practices, its lack of vision in merchandising, its refusal to recognize that a lasting business cannot be built on a temporary foundation. The electrical industry as a whole can not come into its own with such conditions prevalent.

Necessity for a Strong Foundation

The recognition of this fact is the ground for study that constitutes the basis for this series of articles. The electrical industry must be developed along such lines that the foundation will prove equal to the future development. The expansion of the electrical industry must be such that it will not be necessary to back up and rebuild this foundation. Furthermore, development of the industry must lead into no blind alleys. These are the matters with which the brains of the electrical industry must concern themselves. The electrical industry must be developed along lines harmonious with the economic organization and development of the entire country. Nothing else will survive.

For present purposes it is desired that the reader shall grasp the fact that the electrical industry as a whole is not functioning as it should. This condition is nation-wide, though it may be admitted to be more acute in some sections than in others. We may as well face the fact and try to analyze those conditions which have brought this to pass. Only a clear vision of the underlying causes will make it possible to work out a solution of the existing problems of the electrical industry. The Pacific Coast is no exception to these conditions. Here, as in other sections of the country, we have manufacturers who are so determined to find a market for their products that they are not over-scrupulous as to just how they do it. We have jobbers who do not know the first principles of jobber merchandising nor the functions which the jobber that really jobs must perform. We have a type of contractor-dealer who lives by reason of the unsound business methods of over-eager jobbers, thus persisting where they ought to be eliminated for the good of the industry as a whole.

In recognition of these conditions we have another type of manufacturer, jobber and contractor-dealer that realizes where such conditions will lead, calling into play every method within their power to combat these evils that threaten the welfare and future progress of their industry. There are able men in the electrical industry on the Pacific Coast and many of them are studying the situation there and elsewhere with care. It is by no means the intention of the writer to indicate that conditions on the Pacific Coast are hopeless. They are about as good and as

bad as elsewhere. Some of the excellencies of the electrical market in general are more highly in evidence there and some of the evils are, perhaps, more prominent there than elsewhere. These will be dealt with more intimately hereafter. What has been said here is for the sole purpose of making clear just what conditions obtain within the electrical market as at present organized on the Pacific Coast. These facts constitute the general background which must be kept in mind in approaching the subject of distribution in that territory.

Direct Distribution

Let me say that there is a well developed market for electrical products on the Pacific Coast. It is a market of respectable proportions. It is an expanding market with an assured future. A manufacturer new to the Pacific Coast can reach it by (a) establishing his own distributive system from first to last, or, he can (b) use the distributive system that has been erected there. With respect to the former let it be said that it is a question whether any manufacturing company, however powerful, is in a position to establish its own factory branches, warehouses and retail outlets. There would be, of course, distinct advantages in this plan. The foremost is control of distribution. Control of distribution means something in a confused market. Among other things it means (1) perfect co-ordination of sales policies with consumer demand, (2) it means that goods sold over the counter will be properly priced, (3) service work essential to expansion of good-will can be rendered more effectually, (4) substitution can be avoided, and (5) the tastes of consumers can be studied first-hand. Thus (6) improvements in the product and (7) new and strong sales arguments can be developed. A sound knowledge of retail costs and problems can be obtained. These advantages are definite. They spell efficiency and they are worthy of effort, but they cost a good deal. Nevertheless certain manufacturing companies have found it advisable to control every phase of distribution. Such widely different concerns as The Library Bureau, A. G. Spalding & Bros., and the National Cash Register Co. engage in distribution right up to the ultimate consumer. The National Cash Register Co. finds it essential to maintain agencies of distribution, independent yet closely affiliated with the company, for the sake of service. Certainly the servicing of cash registers is not more essential than the servicing of appliances. It must be stated however that none of these concerns is marketing household appliances. There is a vast difference in catering to mercantile establishments and homes. Every possible advantage through the operation of adequate retail outlets is needed by the electrical industry today and needed badly.

However great the advantages of owning retail outlets, it is out of the question for the average manufacturer of electrical products. Still, it does no harm to bring these matters to the reader's attention. The average manufacturer of electrical goods must avail himself of the existing mechanism of distribution. The good and bad in this mechanism must

be taken together. In view of this fact, when the manufacturer faces the Pacific Coast electrical market, what kind of distributive system will he find?

Aspects of the Pacific Coast Market

There are certain outstanding aspects of the electrical market in the Pacific Coast territory. (a) The old, nationally advertised and standard lines for the most part are getting good volume of sales direct through established, regular jobbers. (b) A considerable number of high-grade lines and many new and less well known lines are reaching the market through manufacturers' agents. They play an interesting and significant part in the processes of distribution, selling through jobbers where they can, but selling none the less. (c) The key to an adequate understanding of electrical distribution in Pacific Coast territory is to be had only with a thorough understanding of the position of the jobber. (d) The relation of central stations to the existing methods in marketing and merchandising and to other factors in the electrical field must be grasped before Coast electrical problems can be rightly understood.

In addition to these facts it is essential to point out (a) that there is a strong fraternal spirit among electrical distributors of all sorts in the Pacific Coast territory. This spirit is a factor in the success of an individual distributor or concern. (b) Add to this the fact that there is a political propaganda for public ownership of utilities and you have an element in the situation with certain ramifications not to be overlooked. (c) The men engaged in distribution of electrical products are very much alive to this situation, in fact they are in general very much alive to everything that relates to electrical products and their distribution. They know their territory and the market. (d) Let it be said that the electrical market is dominated by distributive organizations which radiate from a few large centers. The distances between these centers are great, from the point of view of an eastern manufacturer, but this is of little consequence when the center of operations for a given organization is strategically correct and well captained. (e) Finally, it is important not to overlook the fact that the distributing organizations now in the field fall into two fairly distinct groups. There are certain powerful jobbing organizations with equally powerful affiliations. All other jobbers with their affiliations fall into the other group. What the latter thinks and does depends a great deal upon the activities and policies of the former.

With these facts in mind consider also that the market is organized and functioning. To be sure it functions somewhat imperfectly. There is some lost motion and some friction; pronounced at some times and less so at others, but even so a grasp of the very irregularities and complexities is not difficult. They center around certain well defined tendencies which are logical and natural components of any system of distribution no matter how excellent. That there is some confusion in the electrical markets of the country as a whole, and hence, in the Pacific Coast territory is certain, but there is a certain orderliness in the very confusion.

California's Opportunity and the Utility's Responsibility

By R. H. Ballard

Vice-President and General Manager,
Southern California Edison Company, Los Angeles

ON every hand there is evidence of the concerted effort being put forth by our best citizens to increase our industries and to improve our commercial structure. From the Chamber of Commerce in a small community to extensive movements such as the All Year Club, Californians, Inc., and the California Development Association, we find this invitation being voiced, "Come to California, wonder spot of the world, blessed by a benign climate, rich in natural resources, convenient to foreign markets and with abundant electric power for every requirement."

Never was a honeymoon couple, preparing for the first dinner guests, so busy as is California in her capacity as prospective hostess to the millions who are planning to make this western commonwealth their home.

In any of these organizations we find men of radically different social, political and religious views, but in their opinion of California's greatness they are unanimous. That this opinion is correct is demonstrated as each new proselyte immediately becomes an evangelist, in turn telling his eastern neighbors of the happy and prosperous existence that awaits them here.

A new factory is built in Oakland, a new steamship line comes to Los Angeles, a mill is started in Fresno, a packing house is established in Watsonville. In each case the Chamber of Commerce celebrates and the newspapers welcome the stranger in truly western style. All of which is just as it should be.

But sometimes they overlook an element that makes this rapid absorption of new people possible. The climate, the natural resources, the marine highways have been provided by a Providence which also supplied our source of power, but left it for man's ingenuity to release. Lumber for factories and concrete for piers may be obtained on comparatively short notice, but power, which takes such a prominent place in all these invitations, requires years of precise thinking in advance of its actual production.

It was Roosevelt who said that only a handful of men in America could think internationally. This might be paraphrased to read, "Only a few men can think fifteen years ahead of their time." In this latter class we must place such men as Britton, Huntington, Miller, Wishon and those others whose clear

CALIFORNIA and the rest of the western states have been re-discovered. In agriculture, in industry and in living conditions, the West is a land of golden opportunity. In the caravan of progress the hydroelectric utilities are marching in the lead. They are seeing that growth is not retarded for lack of power. A part of their obligation is building for the future and they are making their plans not for tomorrow, but for fifteen years ahead. In this article Mr. Ballard points out some of the responsibilities of the utilities which must not be overlooked if they are to maintain the enviable position in which the pioneers of the industry have placed them.

thinking and inspired vision produced the present power systems which are California's pride and one of her most substantial attainments.

Retrospect is useful only as it aids in prospect. Years of success along established lines at least suggest that future action along similar lines will be sound. The banker knows what percentage of an appraisal constitutes a safe loan. The farmer knows the relative values of wheat and alfalfa. The department

store manager knows the whims of style. And by the same token our utility executives know probable peaks and what will be necessary to meet them.

This brings me to a brief discussion of California's opportunity and the utility's responsibility in its realization.

The first public utility, whenever and wherever it may have existed, did not have any noticeable effect on the sum total of the world's affairs. But as our life has become more complex and all of our relations more interdependent, there has gravitated to the shoulders of the public utility an obligation as definite as that resting on the courts or the medical profession. Day by day this obligation becomes heavier, thus calling for still greater achievement on our part. Yesterday's "good" is today's "fair," while tomorrow's "excellent" is beyond the conception of some minds.

Turning for a moment to the Southern California Edison Company, we note that in the technical field it is operating at 220,000 volts; in the public relations field it has evolved the Department of Greater-Service; in the financial field it has obtained 63,000 stockholders—each a distinct achievement yet causing little comment soon after it is realized. What will be the transmission voltage, what the refinements of public relations, how many stockholders will there be fifteen years from now?

Each step is in the interest of California's progress. Each advancing move increases our responsibility and calls for a finer texture in our personnel.

California's opportunity seems boundless. With one-third of our area, the island of Java cares for a population of 35,000,000.

Each succeeding year will see greater influxes of new people, lured by the charm of our state and entitled to a square deal. It is California's opportu-

nity to provide for their physical needs and cultural desires.

No great forethought is necessary to arrange for the distribution of groceries and clothing in a new community. That orchard, which in 1930 is to be a bustling town, will have its stores, hotels, garages, schools and churches in due time. But if it is to have ample electric service, the surveyors must be working in the mountains right now—laying out dams, tunnels and powerhouse sites.

The Western Utility's Responsibility

Herein lies the peculiar responsibility of the electrical utility company in the West. We must go so far afield for our power that the time element is remarkable. Active construction work ranging from two to six years, accurate planning for a period of fifteen years and general planning looking fifty years ahead—these are the schedules that our executives, engineers and financiers must meet.

Obviously, such a schedule does not allow any experimenting. Sudden changes in policy or management would be disastrous. It is only by the persistent following of the path shown by past experience to be right that our progress is sure. By this I do not mean that we never adopt new ideas. On the contrary, we are alert to discover new methods which will be beneficial. But in adapting them it is important that our fundamental economics be not disturbed. At all times the delicate balance between planning and building, financing and marketing must be maintained.

Only by a policy sufficiently broad to contemplate a fifty-year program, administered by men of experience, judgment and vision can the responsibility of the electrical public utility be met. Consumer-ownership, state regulation and private management is the only combination that meets this situation adequately.

It is important that we build with both hands. Some illogical persons would assist California's progress with one hand and hamper it with the other. The full realization of the Golden State's opportunity will come only through sympathetic cooperation among all its constructive elements, not the least of which are its electric public utilities.

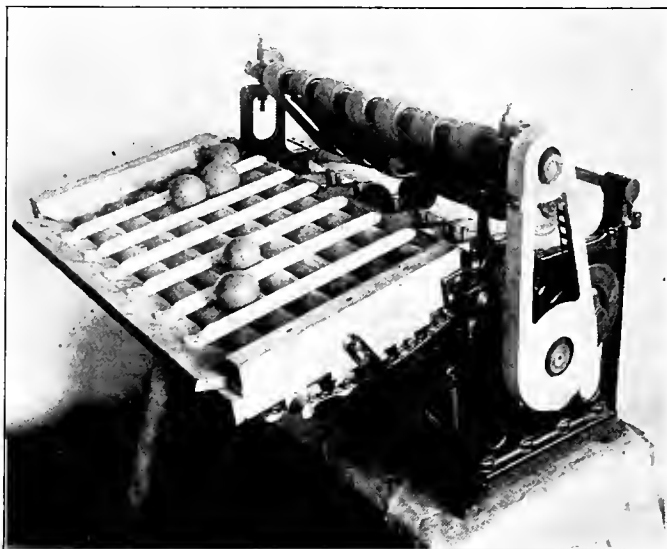
With past experience to guide them, with the vision of its leaders to inspire them, with the confidence of the public to assure them, our electrical utilities accept the responsibility for providing adequate power service in California at all times—welcoming constructive criticism and marching steadily forward with the full knowledge that right always prevails.

Electric Fruit Marker Prevents Quality Substitution

ANOTHER application of electricity for which California is responsible and which has been developed entirely within that state is the marking of fruit. The machine for this purpose is an ingenious device and is the conception of L. Neueuschwander and F. Ahlburg, both of Los Angeles.

The machine first heats the surface of the fruit sufficiently to warm the natural wax and then imprints the design upon the heated portion. The heating device employed is of 1 kw. capacity and the machine is driven by a 1½-hp. motor. After the apparatus is thoroughly heated up the heating load is automatically reduced to 500 watts, control being by means of a thermostat of special design set at 320 deg. F.

The machine is placed between the grading belt and the sizing machine in the packing house. Fruit rolls off the grading belt and onto the escalator of



Electrically heated and operated machine which automatically brands oranges and other fruits thereby preventing unethical trade practices.

the marking machine. It is then carried to the star wheels which carry the fruit over the dies which operate at a temperature sufficient to accomplish the warming of the wax. The dies are in turn contacted with an inked ribbon and carry the ink to the fruit, branding the surface at the heated point of impression.

This machine has already been adapted to the marking of cantaloupes, watermelons, etc., and is in extensive use. One very great advantage of the use of fruit branding machines is that it absolutely prevents the substitution of inferior grades of fruit for the well-known and extensively advertised brands. For marking oranges the machine is particularly desirable and in Florida alone over 100 are in use and many are also employed in California. The machine is controlled by the Electric Fruit Marking Company of Los Angeles, Calif., who operate on a royalty basis.

This device may also be used for marking apples and has been tried out successfully for this purpose. Lemons, which have a very delicate skin, have also been successfully handled and the field of application seems to embrace practically every fruit which it may be desired to brand. By the use of this electric fruit marking machine growers and packers are enabled to tie in the national and local advertising of brands with the actual sale of the fruit itself.

Christmas Sales Plan of the California Electrical Cooperative Campaign

THE electrical appliance business of the past has developed more or less by itself and in somewhat haphazard fashion. There has been very little, relatively, of systematic planning for definite and continuous sales plans. Sales effort has been spasmodic and individual. The most saleable merchandise and that which offers the utmost in comfort, convenience and safety for every family has been sold by its own inherent desirable qualities and rarely through intelligently directed design. Sales volume, therefore, has been spotted or seasonal with attendant carryover of unsold stock. While this carryover has not always, and perhaps not often, been a serious matter, owing to judicious and discreet buying, it has nevertheless existed and has not been conducive to healthy merchandising. It is rapidly being recognized that turnover, and not discount, to a very large extent determines profit and that, therefore, a heavy carryover reduces profit through reducing turnover.

Consideration of this phase of merchandising is justly coming to the fore and Robert L. Eltringham, manager of the California Electrical Cooperative Campaign, has evolved a plan which will doubtless assist in leveling the peak of merchandising and in filling in the sales valleys of the dull months. The plan really embraces two or three separate parts. Primarily, it starts out with the Christmas season and emphasizes the value of electrical gifts for Christmas presents. Special advertising material has been prepared for that season and will be of an unusually attractive character. The general note of the publicity will, of course, center about the idea of Santa Claus and Christmas giving and the material to be supplied to dealers, jobbers and central stations will make possible the most attractive of window and store trims. This material will include large wreaths in the center of which will appear the words "Give Electrical Christmas Gifts," cut-outs of Santa Claus 12 in. high, with the hand pointing to the right, left and center, and slips on which are printed slogans urging the purchase of electrical Christmas gifts.

These slogans will be several in number and among others will be such as these: "Crisp Toast Made Right at the Breakfast Table"; "Superior Coffee Made at the Table in an Electric Percolator," etc. The general plan of the window trim is to have the large wreath in the back center of the window and to put the various appliances on display. The slogans will then be pasted on the inside of the window with red ribbons leading from each slogan to the

MR. Eltringham has evolved a plan which should not only stimulate Christmas appliance sales but should also serve to promote continuous buying of these devices. This plan should take out the "sales valley" and should be productive of increased turnover, with consequently increased profits from dealers' electric appliance business.

device which it advertises. The desirability and the useful comfort of the device will in this way be forcefully presented and this will without doubt serve to increase the sales of electrical appliances. This material has been prepared in large quantity and is available to every dealer who sells electrical appliances.

To tie in with the dealer advertising, the Campaign has arranged with motion picture theaters throughout the state for the showing of colored lantern slides of attractive design. These slides will be in the holiday colors of red and green and will stress the usefulness of electrical appliances and their application as Christmas gifts. This is a costly form of advertising but through the theaters which have been selected it is expected to reach more than three million people within a space of two weeks. It is planned to furnish the window trim material to central stations, jobbers and dealers and thus to obtain the greatest possible publicity. It will therefore be seen that dealers by adopting the material furnished and by making good use of it in their window and store trims will reap the benefit of concerted effort and planning and will take part in a general movement for the increased turnover of electrical appliances.

The second part of the plan is the annual "June Brides' Week" which has already been made a custom by the Campaign. This will be repeated as usual the first week in June and special advertising material is now in preparation.

The third feature of the plan is that it is proposed to extend the effort throughout the entire year and one of the slogans to be used will be "Make Christmas last throughout the year," the idea being that electrical appliances may very well be given at any time and that Christmas is not the only period of the year when such devices are acceptable.

By spreading the message of electrical utility throughout the year it is expected that not only will seasonal sales be increased but that the usual sales valley will be eliminated and that volume, and consequently turnover, will be materially increased.

Inasmuch as turnover, to a great extent determines profit, dealers should benefit materially by the application of this plan to their individual business. This will result in the increased sales of appliances at other than holiday seasons and should work to produce a much more satisfactory balance sheet at the end of the year. This entire publicity program will be spread over the whole state and dealers who tie in with it will reap the benefits of cooperative effort.



SOME of the Christmas advertising material prepared by the California Electrical Cooperative Campaign for distribution to dealers in electrical appliances. The large wreath makes an excellent center piece for window trim and the card in the lower right serves well for window and counter display.

The illustration in the upper left shows the cover of an attractive booklet descriptive of electric appliances. All of this material is in the regular Christmas colors of red, green and white. The slogans also furnished for attachment to the window are similarly colored and are of unusual sales force.

Changes in the National Electrical Code

By Claude W. Mitchell

Electrical Engineer, Board of Fire Underwriters of the Pacific,
San Francisco, California

THERE are certain sections of the National Electrical Code to which the majority of electrical contractors and workers have found it necessary to refer very infrequently if at all. For that reason these will be omitted from the 1923 edition and published by the National Fire Protection Association in other pamphlets containing additional rules and data pertaining to their respective subjects. The rules to be omitted from the new Code are those formerly found under the headings: Car Wiring and Equipment of Cars, Car Houses and Marine Work.

Continuing the discussion of the rules which have been changed, the following will deal with them practically in the order in which they were to be found in the 1920 edition and unless otherwise noted the numbers given are those assigned to the rules of that Code.

Protection of Generators

Rule 1-d, outlining the protection necessary for generators, has been amended so that in central stations where the type of apparatus used and the nature of the system operated makes protective devices inadvisable and unnecessary, their omission may be permitted by the inspection department.

Grounding of Motor Frames

The new rule replacing 8-a distinguishes between permanently located and portable motors with respect to grounding of frames. It is recommended that the frames of portable motors which operate at less than 150 volts be grounded when this can be accomplished readily. The rule provides that the frames of portable motors which operate at more than 150 volts shall be guarded or grounded.

High-Potential Motors

As worded, the old rule, 8-b, seemed in a way to discriminate against the high-potential motor. The new rule has corrected that fault and also raised the voltage limitation by inserting the words "to ground" after the word "volts." It reads: "Motors operating at a potential exceeding 2,500 volts to ground shall not be installed elsewhere than in central stations, substations and generator and motor rooms." This will permit without special enclosure the operation of motors receiving current direct from 4,000-volt star-connected distribution systems, which have been adopted as standard by many power companies.

Protection of Motors and Motor Circuits

The new rule recognizes thermal cutouts and overload relays for motor protection. A change is made to provide for protection only in ungrounded conductors. In keeping with those made in the

***T**HE third in a series of articles by Mr. Mitchell outlining the changes and revision in the 1923 edition of the National Electrical Code. In this article numerous changes of importance to contractors are outlined and detailed information is given relative to protection and protection devices.*

660-watt rule, consistent changes have been made in the rule relating to grouping of small motors under the protection of a single set of fuses. The fuse limitation has been raised from 10 to 15 amperes and wattage of the circuit from 660 to 1,200. Besides raising these figures, the rule also

provides for grouping of motors protected by thermal cutouts as follows: "Motors may be grouped under the protection of a single set of fuses provided the rated capacity of the fuses does not exceed 15 amperes and the total wattage of the circuit does not exceed 1,200, or provided each motor is protected by thermal cutouts. The number and size of the motors grouped with thermal cutout protection need be limited only by the maximum size of the fuses with which the thermal cutouts can be safely used and each thermal cutout shall be marked to indicate the size of this fuse."

The paragraph following the table in rule 8-c specified certain conditions under which fuses are not required in addition to circuit breakers. The new rule adds that they will not be required where next back on the line there are fuses rated or a circuit breaker set at not over 300 per cent of the motor nameplate rating.

In addition to the requirements outlined in rule 8-c(1) for motor protection the new rule will specify that if an overload relay is used, its rated capacity shall not be exceeded when the motor it protects is carrying 110 per cent of its continuous current capacity as indicated on its nameplate. The second fine print note under this rule has been stricken out and a new paragraph added which is as follows: "Where the motor running protective device is shunted during the starting period the motor and the portion of the motor branch circuit between the motor and its running protective device shall be considered sufficiently protected during the starting period by the next overload protective device back on the line if the rating of this fuse or the setting of this circuit breaker is not over 300 per cent of the motor nameplate current rating." This rule definitely establishes a limit for size of fuses or setting of circuit breaker for the condition specified.

The first paragraph of the old rule under the heading "Size and Protection of Conductors of Motor Circuits" specified a minimum carrying capacity for conductors carrying the current of only one motor. The new rule does not change this minimum but provides that the actual sizes are to be determined by the rating of the fuses or the setting of the circuit breaker or overload relay protecting them. An addi-

tional rule provides that automatic overload protective devices may be omitted at the point where conductors carrying the current of only one motor are connected to the mains, provided their current carrying capacity is at least one-third that of the mains, the length of the conductors between the mains and the motor protective devices is not greater than 15 feet and they are suitably protected from mechanical injury.

An amendment has been made which allows the same current carrying capacity for varnished cloth insulated wire that is permitted for rubber-covered wire carrying the current of only one alternating current motor.

Motors in Dusty Places

Rule 8-f has been enlarged upon to outline more definitely conditions under which motors shall be of the totally enclosed type or placed in enclosures, and contains a little more information regarding the type of enclosure required.

Services

The new rule provides that all service wires shall enter the building at a point as near as practicable to the location of the service switch. This emphasizes the old Code rule (24-a) which requires the service switch to be located in the nearest readily accessible place to the point where the wires enter the building. This old rule is not eliminated in the new Code. Its retention and the new rule just cited will require that consideration regarding the location of the service switch be given both in laying out the interior wiring and in running of service wires. The new rule on services also goes a step further than the old in recommending that conductors entering buildings from overhead lines be run in rigid metal conduit. When so run the service fuses may be located at outer end of service conduit. When the service fuses are so located or are locked or sealed, duplicate main fuses or branch fuses connected on the load side of the meter and enclosed in an approved casing or cabinet, so as to be readily accessible to the occupant of the building, shall be provided.

Trolley Wires

Rule 12-i of the old Code has been stricken out and minimum size for trolley wires is not specified.

Constant-Potential Pole Lines

No change is made in the rules for constant-potential pole lines of over 5,000 volts except to add the recommendation that rules of the National Electrical Safety Code, part 2, be followed.

Switches

The first paragraph of the old Code rule 19-a, insofar as switches are concerned, has been amended to read as follows: "On constant potential circuits, all service switches and all switches controlling circuits supplying current to motors or heating devices, unless otherwise provided in this Code, shall be so arranged that the opening of the switch will disconnect all the **ungrounded** wires." One of the exceptions is that the switch blade in a grounded conductor shall not be omitted for switches controlling heating appliances of more than 10 amperes or 1,200 watts total capacity.

In the case of a service switch a blade will be required in the grounded conductor unless the switch is enclosed in an approved cabinet and other means provided within the cabinet for disconnecting such conductor. It is recommended that the service switch be of the externally operable type and unless it is of this type additional switches shall be provided for control of individual circuits in compliance with the recommendation that where the current of a single circuit, or group of circuits, is separately metered, as in apartment house installations, a switch and cutout be installed to control such separately metered installation, the switch and cutout being enclosed and the switch being externally operable. The location of this switch and cutout may, or may not, be close to the meter.

The provision that the switch controlling a separately metered load may, or may not, be placed close to the meter will allow grouping of meters in an apartment house installation and placing of switches within the apartments themselves. This may be very desirable at times when space allotted for meters is small and, also, it allows the switch controlling each apartment to be placed where it may be readily accessible to the occupant.

Single-pole switches shall not be placed in any neutral or grounded wire. Therefore care must be exercised in placing single-pole switches in one conductor of a two-wire circuit to be certain that the grounded conductor is not disconnected by the switch. In other words, the switch shall be placed in the ungrounded lead to the outlet or device which it controls.

The old Code stated that three-way switches are considered as single-pole switches and the new rule settles an oft-times disputed point by adding that "they shall be so wired that only one pole of the circuit will be carried to either switch."

Motor Switches

The rule for motor switches has been amended so that, except for crane motors, the controlling switch need disconnect only all of the ungrounded motor leads. The old rule required that all leads be disconnected by the controlling switch. Additional specifications for the motor switch are to be found in the new Code as follows: "The motor switch shall have a continuous duty rating at least equal to the current-carrying capacity of the wires between the motor and its running overload protective device, and it may be of the disconnecting type if it is not intended to be operated under load and is so located or locked that it cannot be readily operated by unqualified persons."

Heating Appliances

The old rule permitting the use on branch lighting circuits of heating appliances each of 6 amperes or 660 watts or less still stands but attention is called to the recommendation referred to in the last article which is as follows: "Receptacles for attachment plugs (convenience outlets) are strongly recommended in order to facilitate the use of electrical appliances which, otherwise, must be connected to sockets designed primarily only as lamp holders."

In conformity with the 15 ampere limitation placed upon branch circuits the rule referring to heating appliances has been amended so that if they have a capacity each of 10 amperes or 1,200 watts or less they may be grouped on a special circuit protected by fuses having a rated capacity not greater than 15 amperes. Each complete heating appliance, whether containing one or more heating elements, which is of more than 10 amperes or 1,200 watts total capacity, shall be supplied by a separate branch circuit. Subdivided circuits of a heater need not be separately fused.

Metal Raceways

The rule limiting to 1,320 watts the circuit capacity of wires run in metal raceways has been amended by placing the maximum capacity limit on fuses protecting such circuits at 20 amperes at 125 volts or 10 amperes at 250 volts.

Unusual Photo Presents Importance of Illumination

By Joseph O. Hickox
Mt. Wilson Observatory

GENERALLY speaking, people are apt to take for granted the benefits and privileges of modern life. They are so accustomed to the provision for the every-day necessities that they no longer appeal to the imagination and their importance is frequently overlooked in the rush incidental to their present day life.

One of the most important of all necessities is light. Millions have been invested that people might have it, more millions have been devoted to improving its quality and adaptability and to furnishing it to the public at moderate cost. The extent of this research is overlooked and lost sight of in the acceptance of illumination as a birthright. The dependence which is placed on illumination is scarcely thought of, for the remarkable continuity of service now provided by the various utilities gives practically uninterrupted enjoyment of this blessing. Only occasionally is thought given to the value of artificial

illumination and its application to the preservation and protection of human life.

What this means to the individual, apart from the spectacular, can hardly be written for in those lights and on their unfailing source, is placed the dependence for safety of all of the millions of human souls beneath their rays. Not only safety but comfort as well is carried forth by each light beam and industry and home alike rely upon the glittering lamps. Without these lamps there could be little of comfortable home life, little of amusement, only restricted merchandising and very questionable safety of the individual.

From an engineer's point of view this is also an extremely interesting matter as it involves many engineering and construction problems worthy of note. The mere physical lay-out is perhaps the simplest of these and merges into the technicalities of generation, transmission and distribution as well as the proper application of energy at the point of consumption. The energy consumption is staggering in its proportions.

The photograph above was taken from the summit of Mt. Wilson on the night of Oct. 1, 1922, and covers a triangular area approximately forty miles on a side within which area are located more than a million people. The cities seen herein are Pasadena, which is directly at the foot of the mountain and at the right Los Angeles, stretching out into its environ Hollywood. At the extreme upper right are to be seen the beach towns of Santa Monica, Ocean Park and Venice, followed to the left by El Segundo, Redondo Beach, San Pedro and a portion of Long Beach, which is at the extreme left of the picture. On the horizon, in the left portion of the picture, is Catalina Island with Avalon showing as a dim patch of light near the left end. This point is seventy miles, air line, from where the picture was taken. Lights on battleships, anchored in the harbor between San Pedro and Long Beach, may be seen as may also the lights of street cars and automobiles which appear as streaks of light joining the various cities.



The above photograph, obtained by means of a two-hour plate exposure, shows the importance of illumination to more than forty cities and towns in southern California. The view is from the top of Mt. Wilson and takes in points as far away as Catalina Island, over seventy miles air line from the camera.

Making the House a Home

By Vere Crockwell

Advertising Department, Southern California Edison Company

ELECTRICAL equipment as a work of art is taking the place of the "wiring job" in California's fine new homes. Of these, one of the most unusual is the home of Otto Meek in Flintridge, near Pasadena, which is a luxurious house of Spanish design, expressing the utmost in modern convenience and comfort.

In showing me his home, Mr. Meek said, "We planned electrical equipment as a part of each room, instead of purchasing fixtures and wire. As we studied the plans our constant thought was 'What



Electricity is so skillfully employed in this home that one feels its influence without realizing its presence.

electrical device will add to our enjoyment of this particular room?" The result has been extremely satisfactory."

As each switch, outlet, light and appliance was shown I could not help thinking of the unnecessary stumbling, fumbling, stooping and stretching that is endured by other people abundantly able to have real electric service but ignorant of its varied applications. In Mr. Meek's home every fitting is located precisely in the spot that one would touch instinctively when service is desired.

Even temperature throughout the house is regulated by a series of wall buttons. "We call them keys to comfort," my host explained. "There is no furnace smoke to damage oil paintings and furnishings, nor obtrusive radiators to mar decorative effects."

Convenience outlets accommodate floor lamps and I observed that the rich lighting on several paintings came from small lamps concealed in the moulding. In the bedrooms are convenience outlets for reading lamps, heating pads and curling iron, while the bath rooms are equipped with hair dryer and an outlet for any needed appliance. A serving table in the dining room proved to be an electric warming table and here also convenience outlets had been installed for the ready connection of the percolator, samovar or chafing dish.

Novel lighting makes the kitchen in this house especially convenient. China closets, kitchen cabinet,

shelves, drawers and bins are each equipped with a lamp which eliminates all dark corners—even the electric stove has a lamp in the backshelf which I learned is invaluable when the light from the center of the room is insufficient. An electric dish washer does the worst of the kitchen work. In the kitchen there are also outlets for a variety of appliances including a tiny motor which polishes silver, turns cake and bread mixer, and performs innumerable little tasks. The laundry is entirely electrical, having a washer, an ironer, a wringer and an extra outlet for an iron, heater or fan.

"Electricity has solved our refrigeration problem," Mr. Meek said. "Not only has it eliminated the ice service nuisance, but we find that the dry cold of electrical refrigeration is more sanitary and keeps foods in better condition."

As we stepped outside, my host showed me a fine wire which followed door frame and windows. "The receiving line for burglars," he explained.

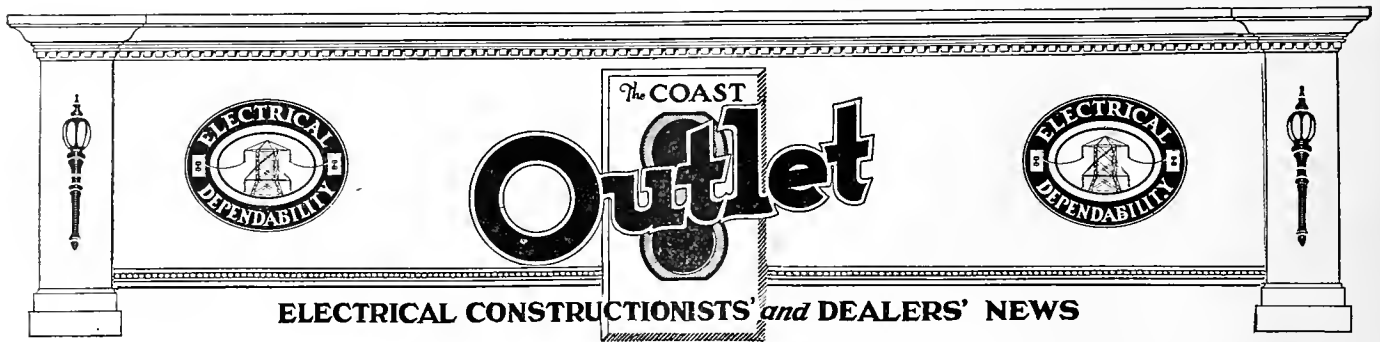
Last came the patio and garden, arranged for lighting on festive occasions. Lamps of amber, blue and red are concealed in the fountain to respond at the touch of a button and lend a "Maxfield Parrish" effect to the scene and in an oak tree near the entrance, hung a rustic lantern to light the driveway. Truly, the precedents and traditions of the wireman have been shattered in this instance.

Planned by a man who worked out his problems as electrical needs suggested themselves, this house is an example for hundreds of better homes being built everywhere. Such homes offer a comparatively new field to the electrical industry,—that of equipment as an art instead of a "wiring job."



The joy of life as typified in the Spanish architecture has been enhanced in this home by the generous and judicious use of electricity.

The work of architect, contractor and electrician is each of vital importance to the other. Like Mr. Meek, people are building "homes"—not merely "houses" and the homebuilder wants the best of equipment. Heat, refrigeration, lights in unusual places and outlets to accommodate appliances are being considered as never before.



Electrical Construction

By E. Earl Browne

MANY of the modern schools, particularly high schools, are very complete electrically as they are not only designed to provide class-rooms, but also auditoriums for district public gatherings. Many of these modern buildings also contain gymnasiums which are designed with galleries for public exhibitions of drills, gymnastics, hand ball, tennis, etc. This fact necessitates a complete layout of lighting equipment and apparatus for controlling it. Provision must also be made for heating and ventilating. Provision should be made for a complete stage equipment of footlights, striplights, pockets for floodlights, dimmers, dressing rooms, etc.

To provide the proper installation, the electrical constructionist must be thoroughly conversant with the requirements that the electrical equipment will be called upon to meet. Ample provisions must be made for the correct illuminating of the auditoriums

and other gathering places and in addition to this a complete and modern control system must be provided if the job is to be one that will serve the users satisfactorily and one that will react to the advantage of the contractor.

Because the school auditorium is no longer just a place where the students gather, but is a location which is utilized by public gatherings of the citizens of the community, the care and thoroughness with which the electrical contractor does his work, will be shown to the responsible citizens of the city.

Next in importance to the proper installation, is the provision for the controlling of the electrical equipment that has been placed in the building. Because of the fact that the auditoriums and other gathering places are used at night, provisions must be made for illuminating these rooms and the corridors leading to them during any emergency.

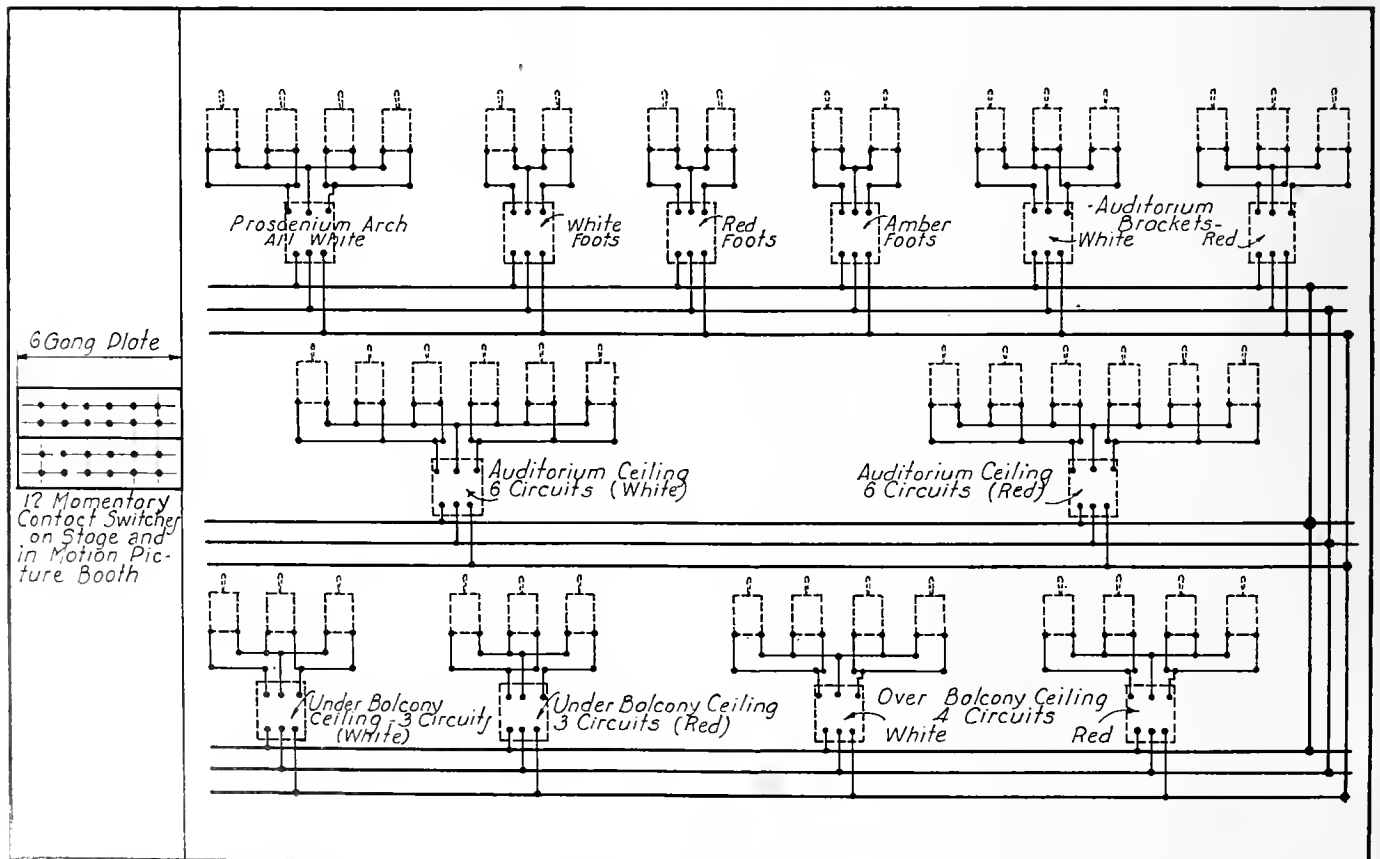


Fig. 1—Wiring diagram showing control of general illumination from stage and motion picture booth.

The general auditorium illumination can be controlled by remote control switches, as per Fig. 1, with momentary contact switches at the stage switchboard and in the motion picture booth. The exit and all stair and emergency lights are controlled from a locked panel board in the foyer. These circuits should, if possible, be supplied with two sources of current so that in case of failure of one supply they will be automatically switched to the emergency or stand-by, which can be a service from another power company if there are two companies. If the service of only one company is available, stand-by service may be secured from an isolated plant or

set of circuit conduits must be run to each outlet to provide for the two voltages. This extra cost is small when the cost of service rendered is considered in comparison with any other scheme except the stand-by service of another power company.

A scheme of automatic stand-by switch-over is shown in Fig. 2 and operates as follows:

On failure of power company No. 1 service, no-voltage coil (A) is de-energized thereby closing contact (y-y') which energizes release coil (D), and opens No. 1 remote control switch and thereby closes contact (I) and also closes plunger switch (H) which latter completes the circuit to coil (C) through

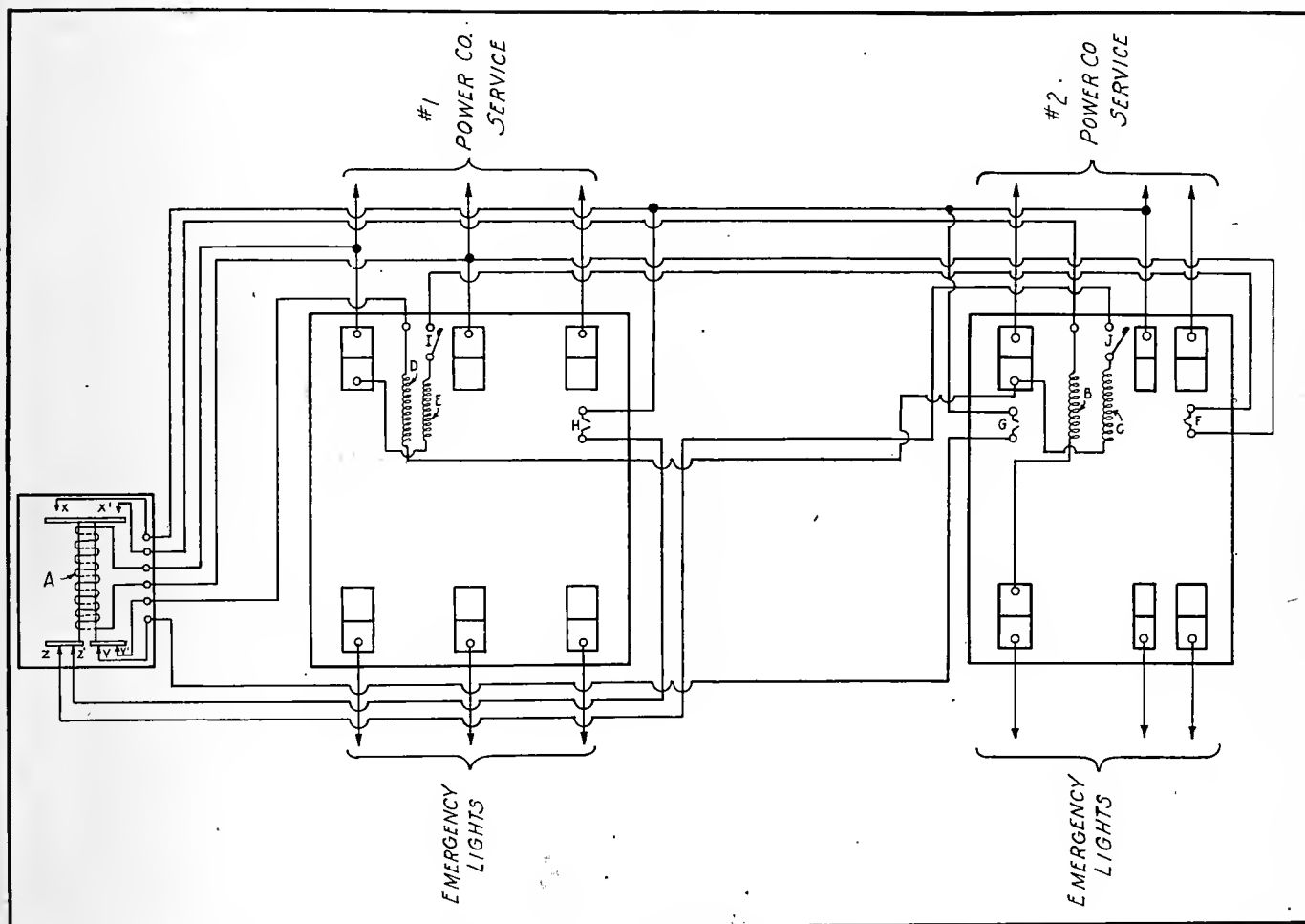


Fig. 2—Wiring diagram showing automatic throw-over control scheme for emergency lighting with stand-by service.

storage battery. The latter arrangement is preferable as, by using six sets of the modern automobile battery of 6 volts each, a standard 32-volt Edison base lamp can be used. Every community has its auto electrician and it is an inexpensive job to keep the batteries in proper condition. If desired, a standard farm lighting generator could be attached to a 1-hp. a.c. motor to provide current for charging the batteries. This system of using automobile batteries is simpler as repairs or rentals are always procurable and in addition they can be placed on a shelf and do not require any sandtrays or special lead-lined and vented battery cabinets. The capacity being about 100 ampere hours they would provide current for twenty standard 20-watt lamps for eight hours which gives a large factor of safety in providing all illumination necessary to empty the building of occupants.

The only objection might be that a duplicate

contacts (z-z') and contact (J), thereby closing the remote control switch on the service of power company No. 2. This opens plunger switch (G) breaking the circuit on coil (D) and opens plunger switch (F) thereby breaking the circuit to coil (E). When the service of power company No. 1 is restored magnet (A) is energized and contact is broken across (z-z') and made across (x-x') which energizes release coil (B) and thereby opens No. 2 remote control switch; this closes plunger switch (F) and completes the circuit to coil (E) thereby closing the remote control switch on No. 1 power company's service.

Telephone service between ticket office and stage and motion picture booth should be provided and with this number of phones a code ringing, common talking, system would provide the necessary service. Between stage and motion picture booth extra wires should be run to provide a return call buzzer system of signals.

Successful Association Meeting Held at Sacramento

One of the most enjoyable, and at the same time one of the most successful, meetings of the California State Association of Electrical Contractors and Dealers was held in Sacramento on Oct. 27. The Southern Pacific steamer Navajo was chartered for the trip from San Francisco and 84 members from the Bay and southern points were on board when she left at five o'clock on Oct. 26. About 50 additional members had assembled at Sacramento and the meetings were attended by approximately 130 men who were keenly interested in the subjects under discussion.

In the morning the Executive Committee held its meeting, followed, at two o'clock in the afternoon, by an open meeting which was well attended and at which were presented papers of material concern to all present. F. V. Mitchell, a certified public accountant who has devoted special attention to the electrical business and who has devised special accounting systems for that class of trade, presented a paper based on his experience in investigating the accounts of numerous electrical contractor-dealers. Mr. Mitchell paid particular attention to the consideration of overhead and to net profit. His investigation showed that the net profit of a group of electrical contractors, after allowing for overhead and other costs, was only 2½ per cent. Considering that this is less than bank interest and less than the return from good investments, Mr. Mitchell pointed out the necessity for better accounting methods among the electrical contractors as the fact of low net profits was in every case due to lack of proper accounting and consequent insufficient cost charges.

Following Mr. Mitchell, Albert H. Elliot, a leading San Francisco attorney, spoke on the relation of the credit manager to the contractor-dealer and brought out many new thoughts. He pictured the credit manager in the light of friend and counselor rather than as an antagonist, as is frequently thought. Mr. Elliot also pointed out some of the opportunities that are open to the credit manager to do constructive work among the electrical trade by closer acquaintance and relationship.

At seven o'clock the members gathered at an unusually attractive dinner which had been arranged by the committee at the Travelers' Hotel. During the dinner entertainment was furnished by local talent which had been gathered together by "Cass" Schneider. A remarkable after-dinner address was given by Albert H. Elliot who spoke on "The Business Man and the Constitution." Mr. Elliot's remarks were inspiring and uplifting and served to create a deeper reverence for that remarkable document drawn up by our forefathers.

The San Francisco and southern members of the party left at eleven o'clock on the "Navajo" and arrived in San Francisco at a little before noon on Sunday. Those who took the steamer trip were loud in their appreciation of the splendid work of the committee of arrangements and of the efforts of the Southern Pacific Company to make the trip pleasant and enjoyable.

Side Lights on the Sacramento Trip

Nearly everyone was in high spirits.

Harry Garbutt won the name of being the leading raconteur of the electrical industry. He gave a very interesting and learned discussion of recent inventions in the saloon of the steamer and explained in detail the construction and operation of the Bonifone and the Oxometer.

Frank Woodward will now be known as "P.P."—(peach pit) Woodward.

Dent Slaughter invented an entirely new style of traveling bag just for the occasion.

B. S. Manuel drew the grand surprise of the trip although Harry Garbutt was the prize winner.

Teddy Du Pas said he didn't know they had beds on board the boat.

Stan Pierce got a lot of practice in kneeling but said it made his knees sore.

Walter Mobley voted the trip pleasant and profitable.

Harry Guilbert says he had a good time even if it did cost him his voice.

We know the river was dusty because of the heavy demand for ice water.

Five or six at a table makes such a sociable game.

Don Ray was present with his usual smile.

Ask Art Fierce why he sat on the back of the chair.

That was SOME midnight lunch the Southern Pacific provided.



Al Elkin and Cass Schneider exchange greetings in the Capitol City. Both are ardent workers for the best in the industry and are popular members of the contractor-dealers' organizations.

Electrical Dealer Holds Electric Range Cooking School

The Hudson Electric Company, Roseburg, Ore., has recently completed a one-week electric cooking demonstration. Six afternoon cooking classes were held covering the various types of cooking and baking, Grace Bogue of the Westinghouse Electric & Manufacturing Company being in charge. The purpose of the demonstration was more for the education and instruction of housewives already owning electric ranges than for selling, although some direct sales were made.

Harold B. Hudson, who is the owner and manager of the Hudson Electric Company, has been very active in pushing range sales in Roseburg, which has a population of about 5,000. During 1922 he sold 122 ranges and so far this year has sold 70. All of these installations have water heaters as well, and use double throw switches.

Mr. Hudson reports that all of these sales were made through his personal solicitation without the assistance of salesmen or advertising. He used a time payment plan spread over 12 months giving, however, a \$10 discount for cash.

Electric Ironing Machines Used to Kill Coddling Moth

It has been found that electric ironing machines, electrically heated, are admirable for killing the coddling moth which conceals itself in the seams of walnut sacks. So serious is this pest that it often costs the growers and packers many hundreds of dollars annually. One grower alone has reported an expense of \$250 per day for extra labor in taking care of sacks infested with moths. The ironers are equipped with a 5-kw. heating element and are 46 in. wide. It is found possible to run through two sacks at a time and during the passage of the sack through the machine all moths and eggs are destroyed. The cost of operation is very low and the protection secured is absolute. Practically all of the walnut growers of southern California have adopted this means of eliminating the danger and loss from this pest.

As a result of the activities of the Denver (Colo.) Electrical Cooperative League in bettering wiring installations, 489 outlets were added during September to jobs actually under construction or to be started soon. Through the efforts of the League, all plans for new schools in Denver are provided with at least one convenience outlet in each classroom. Ninety-eight convenience outlets were added recently to one of the larger school jobs, making a total of 226 for that particular building.

An unusual and perhaps little known use for electric washing machines is that of a leading oil company which uses them for washing oily waste. The waste comes from the washers clean and ready for use thereby effecting a very material saving in the purchase of this commodity.

Paul's Electric Store, Medford, Ore., has moved from the corner of Central and Main Streets into new and enlarged quarters in the Medford Building on north Central Street.

Making Window Displays Attract By Means of Motion

It is well known that the best window displays from the point of view of attracting attention are those which have some moving object. Hardly a person can pass unnoticed a well dressed window in which a part of the material displayed is actually in operation. Dealers have been quick to take advantage of this fact and have developed many very clever ideas which have produced sales results. One effective way of displaying electric turnover toasters is to arrange for the mechanical operation of the toaster in the window. The spectacle of the toast turning automatically without visible means of control or operation never fails to attract attention from the passers-by. The following account of such a display is described by A. J. Hensler in the September issue of "Contact," the monthly magazine of the Westinghouse Electric & Manufacturing Company.

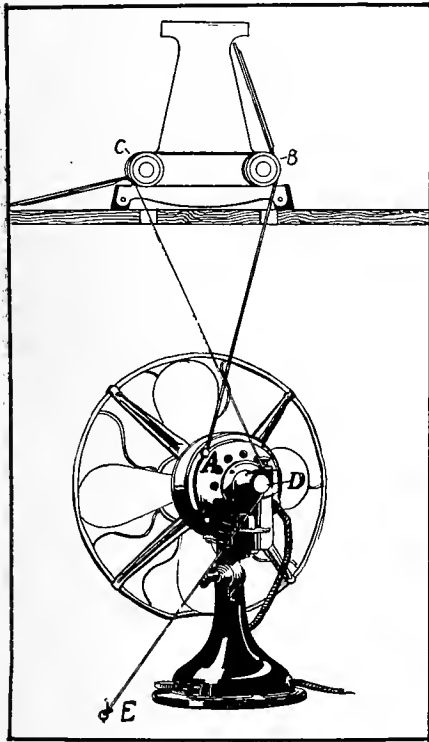


Diagram showing method of attaching fan to toaster to secure moving display for window advertising.

"There have been many ways and means of displaying the electric turnover toaster so that it will operate mechanically without any outside help, but all such displays that have been used in the past have been somewhat complicated and have required a person of mechanical ability in order to get them to work correctly.

"From the picture you can see how simple it is, as it does not require a lot of material such as washers, shafts, lugs, etc. All you require is a toaster, a 10-inch oscillating fan, which you should carry in stock, and a piece of silk cord.

"To set up the display remove the fan blades and guards, place the turnover toaster on a table or a box directly over the fan, not more than 6 or 7 inches away from the table or top of box, take a piece of silk cord and fasten one end

to A, run the cord up to the toaster through a crack or a very small hole, wrap the cord around the knob of the toaster marked B, then run the cord from B to C, wrap the cord around the knob marked C three or four times and bring it down through the table top or box through a small hole or crack, run the cord, so that it will catch on the oscillating part of the fan, marked D, when the fan is in the right-hand position, bring the cord down to the floor and fasten it to a nail or screw marked E. It will require but little adjusting to get it in the right position."

Sacramento Dealers and Power Companies Joint Meeting

In an effort to arrive at a common understanding of their mutual problems the contractor-dealers of Sacramento and some of the officials of the Pacific Gas and Electric Company and the Great Western Power Company held a joint meeting on Oct. 17. The meeting was attended by H. E. Sandoval and E. W. Florence of the Pacific Gas and Electric Company and by George Sanford and J. W. Wrenn of the Great Western Power Company as well as by most of the members of the Electrical Contractors and Dealers of Sacramento. A brief discussion was held relative to merchandising and also as to installation conditions and requirements. The necessity for educational propaganda was brought out as was the advisability of the electrification of the homes of contractors and dealers. J. C. Hobrecht explained that the association stood for the best of workmanship and that in turn the power companies were asked to support the activities of the association leading to quality installations. The meeting was pronounced very successful and served to strengthen the friendly relations between the two independent branches of the industry.

Sacramento Contractor-Dealers Hold Interesting Meeting

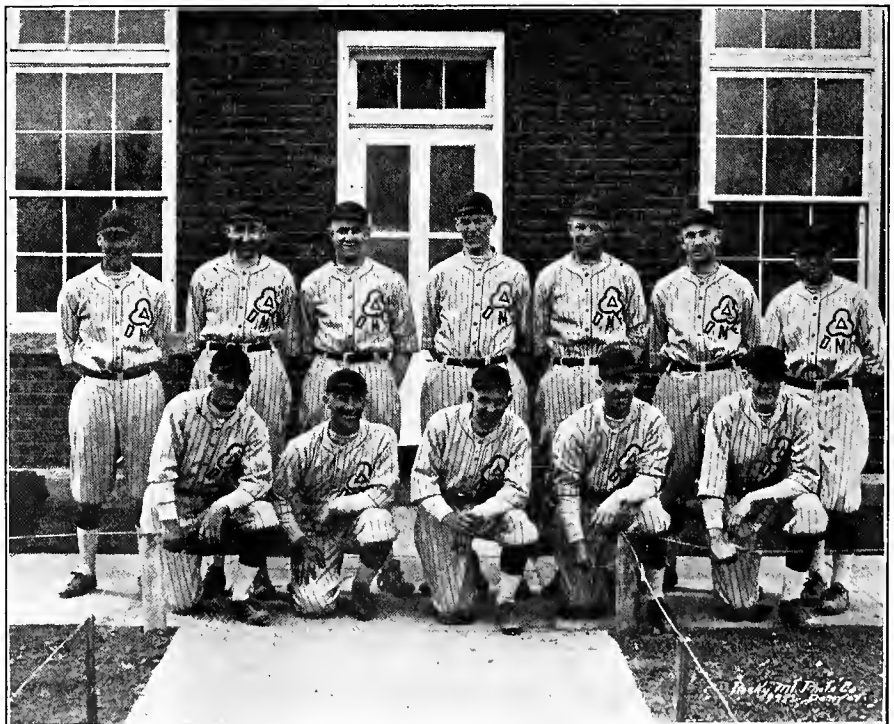
On Oct. 10, the Sacramento Valley Electrical Society held its meeting at the Pacific Gas and Electric Company steam plant on the Sacramento river near the city filtration plant. President Harold Willis presided.

Dinner was served prior to the opening of the regular meeting. Jason L. Frye, of the Great Western Power Company, and Earl M. Hart, of the Pacific Gas and Electric Company, rendered two solos—Mr. Frye at the saxophone and Mr. Hart at the piano. The Pacific Gas and Electric Company orchestra furnished other music during the evening.

Eugene McCann, manager of personnel, Pacific Gas and Electric Company, San Francisco, gave a very interesting address to the society on the subject of personnel work, with particular reference to its application in that company. This was followed by the exhibition of a three-reel motion picture which was not only very good but entirely different from pictures shown heretofore and one such as is seen in motion picture shows. Following the meeting a general inspection of the steam plant was held, during which time the turbines were started up in the presence of the society.

The Bullock Electric Company, Kelso, Wash., headed by P. J. Bullock, announces that a new electric shop will be opened on Second Street, in the former quarters of the Snyder Electric Company. Mr. Bullock was formerly engaged in business in Weiser, Idaho.

The Electric Corporation has incorporated in Portland, Ore., with a capital of \$25,000 and will conduct a general electric contracting business.



Activities of the electrical industry are not all confined to generating and distributing electrical energy. Some of the energy is spent in healthful sports and the above photograph shows the devotees of the great American game as found in Denver. This is the champion base ball team of the Denver City League and its members are from the ranks of the Public Service Company of Colorado.

JOBBER, DEALER AND SALES AGENT



Get the Baker to Help You Sell Electric Toasters

Eat More Toast Campaigns Prove to Be Successful in Selling of Electric Toasters and Bread at the Same Time

When the preliminary negotiations have been completed and the final settlement is at hand, you will usually find that the man in the other industry is really ready and anxious to cooperate with you, with the intention of increasing business in both fields. At times it may seem necessary to spend considerable effort in the preparation of cooperative movements, but the results will usually justify the time spent in this way.

One of the campaigns which have been presented to the public is the one which advises "Eat More Toast." Through the cooperation of bakers and men of the electrical industry, a considerable amount of publicity has been secured in the communities where the campaign has been conducted. The bakers have been supporting the idea that toast is one of the best forms in which bread can be eaten, and the electrical men, who have been pushing electric toasters, have in turn produced the slogan "Make Toast Your Breakfast Food." By working together in this way, the cost of the advertising has been divided over a larger number of merchants and results have been highly satisfactory wherever the cooperative move has been made.

When bakers, and dealers in bakers' supplies to the number of nearly 1,000 people met in French Lick Springs, Ind., in September, their convention looked almost to be a convention of electrical men instead of bread men. The biggest topic the bakers discussed was that concerning the placing of electric toasters in every wired American home, as the preface to getting toast into the same homes as the principal breakfast food.

In the hotel lobby the biggest display was that of toasting devices. One whole day on the program was given over to the discussion of a "Toast for Breakfast Campaign" and of ways and means by which bakers could secure the cooperation of electrical dealers and jobbers in the bakers' plan for a general toaster-selling campaign.

At the convention a considerable amount of discussion revealed that by cooperating with electrical jobbers and dealers as well as central station executives, the bakers could increase their sales of bread by a large amount. As a result of this many of the bakers returned to their homes to promote extensive toaster campaigns. One of the methods that has been used by the bakers was that of giving coupons good for \$1 or \$2 on the price of some standard toaster. The coupons were made

redeemable at any store dealing in electrical appliances and also at the central station company's retail store. The means of paying the electrical men for these coupons have varied according to the agreements made in the separate cities.

To further increase the use of toasted bread as a breakfast food, a wholesale baker in Houston, Tex., had banners painted which read, "Make Toast Your Breakfast Food—Use Merit Bread." These banners were hung on the sides of all of the delivery cars used by the company. This advertising stunt was used throughout the time that local electrical dealers engaged in a toaster selling campaign.

The American Bakers' Association has been urging the adoption of a sales campaign which would bring about the more extensive use of toast as a breakfast food with the purpose of increasing the consumption of bread. The organization has also pointed out to its members that the electric toaster is the most efficient device for this work. The policy of cooperating with electrical dealers to place more electric toasters in the homes has been urged by the Association and in many cases the local bakers have followed the suggestion.

Starting with the intention to put a toaster in every home, Shelly Brothers, a Vancouver, B. C., baking firm, in cooperation with the Electrical Service League of British Columbia and other electrical interests in the city, conducted an "Eat More Toast" campaign in that city early this summer. Despite the fact that the goal was not reached, the sale of electric toasters was increased considerably as a result of the cooperative effort. The sales campaign lasted for two weeks and during that time approximately four hundred toasters were sold.

Through the bakery wagon drivers an attractive circular was distributed with every loaf of bread sold, just prior to the opening of the campaign. This circular stressed the food value of toast as a breakfast food and the convenience of making toast electrically.

During the two weeks, every driver was given standard toasters to place on free trial along his route. These toasters were furnished the bakery firm by the local jobbers and were sold at list price. The driver was allowed seventy-five cents commission on each sale and the difference between the list price less commission to the driver and wholesale price was turned over to the local Asso-

ciation of Electragists, International, for distribution to dealers.

Every dealer featured toasters in his window displays. Display cards and window streamers were furnished dealers by the League and the Sun Maid Raisin Company also furnished attractive display cards to the dealers.

The publicity campaign starting with the circulars distributed to the consumers, included daily advertisements in the newspapers. Street car cards were also used to advertise the campaign.

Make Toast Your Breakfast Food

1/3 OF A CENT TOASTS SIX SLICES



TOAST, crisp, golden brown, piping hot from the electric toaster on your breakfast table—doesn't that make your mouth water?

Two or three slices of buttered toast contain more actual food value than a good helping of prepared cereal.

Think of the ease, convenience and time saved by preparing your breakfast at the table on an Electric Toaster—you have the bread anyway.

Good bread makes good toast. An Electric Toaster makes the best toast.

Ask your Baker



The circular, reproduced above, was presented to purchasers of bread, in the Vancouver campaign.

Manufacturers and the central station featured toasters in their street car and newspaper advertising.

The campaign attracted not only the attention of other bakeries but also of hardware and department stores so that the slogan "Make Toast Your Breakfast Food" was brought to the attention of the public from many sources. What is most important to the electrical industry, is the fact that toaster sales were very greatly increased. The housewives who tried out the electric toasters and did not buy during the campaign are certainly good prospects for toasters and other appliances in the future.

Develop a Classified Mailing List of Prospects

Colorado Springs Company Employs Practical Means to Get Best Results from Direct-by-Mail Literature

Each year many millions of dollars are spent in circularizing prospective purchasers of electrical equipment. This expense is of course one which is separate and distinct from the sums that are spent in advertising magazines, newspapers and in other less direct means. The value of all of these forms of advertising is freely admitted and the progressive business manager will be anxious to state that he considers the money well spent.

The direct-by-mail appeal or presentation of a product which the prospect is supposed to be interested in, is perhaps one of the most powerful forms of advertising that can be employed by any merchandising firm. The personal appeal which it is possible to make in material of this character is extremely productive of sales and consequently is much favored by firms that are desirous of securing more business from a certain list of customers. Direct-by-mail advertising lends itself to the circularizing of local communities particularly well and the central station or contractor-dealer can do well to expend moderate sums on this form of advertising.

One of the principal difficulties to be met in the preparing for a direct-by-mail campaign, is that of securing a mailing list which will be suitable for the greatest number of uses. A keyed list which will show the person addressing the literature, just which persons should receive the particular piece of sales literature, is undoubtedly the most perfect that can be employed. In this way lost motion is avoided and a considerable amount of money is saved which would be spent if the literature were sent to the entire list.

Central station companies can secure excellent mailing lists by using their consumer list. In this way all of the homes that are served by the central station can be reached by the literature that the company wishes to send out at any particular time, but this brings up the point that a certain percentage of this number already has the appliances that the company wishes to advertise. It can readily be seen that a considerable amount of money will thus be spent which will probably bring no return. The housewife who already has an electric washing machine is not a suitable prospect for another machine. She may be induced to talk electric washing machines to her friends, but the advertising manager does not want to burden her with literature in which she is not interested, for if she once gets the idea that a certain concern is sending her material in which she is not interested, she will be loath to pay any attention to any literature that may be sent to her in the future.

The ideal solution is to make each recipient of the literature feel that personal attention has been paid to his or her case. Over a large number of persons this is of course difficult, but a system of grouping, whereby the names of persons interested in the same appliances are gathered into a separate list will permit the advertising manager to pay particular attention to this class of prospects. The electrical contractor-

dealer can also follow this same path for he, too, can group his prospective customers in classes and can direct his sales talks to classes of individuals instead of to all of his prospects regardless of their needs.

The preparation of these classes of prospects involves considerable thought on the part of the person in charge of the lists. Extensive research is often necessary to secure the information which will bring about the classification of prospects into groups such as are desired. It is neither practical nor economical to make a detailed survey of the homes in any one city at regular intervals in order to determine what appliances are in use there and yet this method furnishes one of the most accurate methods of securing the information desired.

The Colorado Springs Light, Heat & Power Company has evolved a plan which could be followed by the larger electrical contractor-dealers and central station companies. This company believed that it could well afford to stand the cost of one survey of its residential customers in order to determine what appliances were being operated by the customers on its lines. This would give the preliminary information to start with and then a system of checking was installed to endeavor to keep the files up to date. The electrical contractor-dealer could do this same thing on a scale proportionate to his business, making a survey of his customers and of the homes of any other prospects that he wished to secure as customers.

The Colorado Springs Light, Heat & Power Company made the survey in 1922 and on a specially prepared form entered all of the information that was secured. While making the survey, the men detailed to do the work investigated the condition of the appliances

that were used in each home and noted the condition of each appliance on the card which carried the name and address of the customer. Thus according to the condition of the electric dishwasher a check mark was placed in either the "Good" or "Bad" condition column. In addition to this the inspector by a series of questions determined whether the electric service was satisfactory to the housewife. Space was provided to indicate whether the person living in the house was an owner or a tenant and the card was dated and signed by the inspector. As this company supplies gas service to the city a survey of the gas appliances was also conducted at the same time.

After the preliminary check had been made it was necessary to use some other means to keep the information up to date. Consequently a record of all appliances that the central station company sold to its customers was kept and the proper notations were made on the service record cards each month. No attempt was made to keep track of the appliances sold by the electrical contractor-dealers of Colorado Springs, except that whenever a man from the central station entered a home he endeavored to secure a correct list of the appliances that were in use there. By a little questioning this information was secured and the man reported to the person in charge of the service record cards.

A key system can be attached to these record cards and in this way the list of names of persons who, for instance, have no vacuum cleaner, may be immediately picked from the entire file and the sales literature sent to this class of prospects only. By noting on the cards when appliances are sold to customers and by checking up on the appliances in use whenever company men visit the homes the Colorado Springs Light, Heat & Power Company has been able to group its customers fairly accurately. The electrical contractor-dealer would probably use a smaller list but he could profitably follow the plan employed by the central station company.

Service Record

THE COLORADO SPRINGS LIGHT, HEAT & POWER CO.

233
J. H. VAN HORNE
LODGE PINE COTTAGE

OWNER
TENANT

ELECTRIC APPLIANCES			GAS APPLIANCES		
	Good	Bad		Good	Bad
Curling Iron.....			House Piped.....		
Dishwasher			Space Heater		
Fan			Hot Plate		
Grill			Range		
Heating Pad			Water Heater		
Iron			Laundry Stove		
Ironing Machine.....			Is Coke Used.....		
Percolator					
Sewing Machine.....			Gas Service Satisfactory?.....		
Space Heater			Electric Service Satisfactory		
Toaster					
Vacuum Cleaner.....					
Waffle Iron					
Washing Machine					
Range					

Date..... 192.....

Representative.

Results of the original survey conducted in 1922 were entered on service record cards, one of which is reproduced above. Additional information was added as it was secured from sales records.



TO enable it to better serve its customers the Panama Lamp Company recently moved to new quarters at 1066 Mission Street, San Francisco. The new store is shown at the left. In the new building erected for the Alexander & Lavenson Electrical Supply Company, in San Francisco, electric air heaters have been used and special attention has been paid to the lighting of the interior.





John W. Hamilton, president of the new firm, standing in the foreground, A. S. Butterworth, Jr., in the left rear under the street number, and a group of members of the 100 Service Plan organization, at the entrance to the store prior to its opening. Miss Helen Ferguson is the young lady.

Ex-Service Men Cooperate in Electrical Business

One Hundred War Veterans Establish New Firm that Will Engage in Electrical Retailing and Construction Work

By W. A. KNOT

Something new has appeared on the horizon of the electrical retail business, and that newness is incorporated in the cooperation of 100 men all of whom saw service in the World War. "The Hundred Service Plan," a corporation composed of 100 veterans of the World War, 90 per cent of whom were wounded or otherwise disabled in the service, has opened an electrical retail store at 5177 Hollywood Boulevard, Los Angeles, Calif. This is believed to be the first store of its kind in the United States to be operated exclusively by veterans of the World War. The corporation, capitalized at \$50,000, is conducting an electrical retail and contracting business, selling electrical household articles, and doing such contracting as they are able to handle at the present time.

They have started this business with that spirit of cooperation, loyalty and determination which they learned on the battlefield, and in time they hope to follow this venture with a chain of similar establishments. By doing this they feel that they are not only advancing themselves but are setting an example to other disabled service men. The old story of strength in unity has been put to work, and by scraping together their individual cash and credit and utilizing their standing in the community these 100 service men have converted their handicap into a \$50,000 pyramid of power.

The members of the corporation have not attempted to build their business upon their war records, but have asserted their determination to build their success upon best values and courteous and efficient service.

Their motto of service which is printed on their cards is as follows:

SERVICE

—is the rock on which THE 100 SERVICE PLAN is founded—service rendered in a new spirit by men

WHO KNOW WHAT THE FULLEST MEASURE OF SERVICE MEANS.

The store is equipped with the latest designs and fixtures for display and storage of goods, there being attractive cases for the display of appliances, booths for the larger appliances and

well arranged racks and shelves for the display of lamps and supplies. The radio department is arranged in a separate room.

Lighting of the store is done with the use of X-Ray and Brascolite units, the former being equipped with various colored shades so that the store and windows may be lighted in any color desired; this has attracted unusual attention from the throngs who pass there nightly.

The opening of the store was preceded by a parade through Hollywood streets and the keeping of "open-house" throughout the day. Miss Helen Ferguson, assisted by Pat O'Malley, featured in Reginald Barker's "The Virginian"; Phillipe de Lacy, the French war orphan, a protege of Mary Pickford; Coy Watson, the ten-year-old film favorite and other prominent members of the film company were on hand.

Officers of the corporation are: John W. Hamilton, president and chairman of the board; De Vier Ely and A. S. Butterworth, Jr., vice-presidents; Olive Doerr, secretary and treasurer; Paul Schwartz, James Lewis and S. A. Capodice, directors. A. S. Butterworth, Jr., is the manager of the store, while the contracting department is looked after by J. E. Glenn, who has been in the electrical contracting business in Los Angeles for a number of years and who is a member of the Electrical Contractors and Dealers' Association of Los Angeles.

The 100 Service Plan

Founded by 100 Service Men for Your Service

5177 HOLLYWOOD BLVD. HOLLYWOOD, CAL.

Every Electrical Household Need

For the Home

- ELECTRIC SEWING MACHINES
- ELECTRIC WASHERS
- ELECTRIC IRONERS
- VACUUM CLEANERS
- ELECTRIC RANGES
- PERCOLATORS
- ELECTRIC IRONS
- TOASTERS
- FANS
- WAFFLE IRONS
- WARMING PADS
- HEATERS
- CURLING IRONS
- NATIONAL
- MAZDA LAMPS

For the Radio

- COMPLETE SETS
- AERIALS
- TUBES
- PARTS OF ALL KINDS

General Supplies

- DRY BATTERIES
- SWITCHES
- WIRE
- BUZZERS
- BELLS
- FLASH LIGHTS
- FUSES
- PUSH BUTTONS

All Standard Makes:
Westinghouse, Hot Point,
Edison, Universal,
Manning-Bowman, Etc.

If It's Electrical—
We Have It

Every Electrical Household Need

5177 HOLLYWOOD BLVD.

"Your Electrical Store"

A. S. BUTTERWORTH, JR.
MGR.

"Your Electrical Store"

The two-color letterhead and envelope used by the organization are reproduced above as is also one of the cards used by the members to introduce themselves to their customers.

At Last! The All-Electric Apartment House

Builder to Install over Two Hundred and Twenty-eight Thousand Dollars' Worth of Electrical Devices in New Structure

In making the apartment a more desirable dwelling place the builder has been quick to recognize the possibilities of the labor-saving electric household devices which have been perfected by the electrical industry during the past decade. Electric ranges have been installed in modern apartments for a number of years, with water and air heaters a more recent, but nevertheless, highly successful innovation. So complete has this success been and so satisfactory have been the results that the electrical industry today is on the threshold of a period of application of electricity to apartment houses which promises a new era for the central station, the manufacturer, the jobber and the contractor.

There are contemplated for immediate erection, in Los Angeles, a number of apartment houses comprising more than a thousand individual apartments all of which will be completely electrified. Contracts have already been signed for the Security Apartments, Hollywood, Calif., involving all of the electric labor-saving household devices which have been perfected, including

ranges, water heaters, air heaters, refrigerators and dish-washers.

E. C. Ebert of Los Angeles is the one to whom credit for the installation should be given. Through demonstrating to the architect and builders that electrically cooked meals are superior, that electric refrigeration is practical and electric water and air heating are highly desirable, Mr. Ebert has paved the way for a number of future all-electric apartment houses. As a result of his arguments, E. M. Frasier, Los Angeles architect, has incorporated in the Security Apartments every convenience which electricity can offer to the housewife.

The net result is that the new building will have the latest and most up-to-date electrical equipment that the market affords. This will include a Frigidaire electric refrigerator, a Hot-point-Hughes electric range, a Sani-Sink combination sink and electric dish washer and an Electrode electric water heater for each of the 170 apartments and, in addition, the entire building will be heated electrically with Wesix flush type heaters. The size of the building

may best be judged when it is stated that there will be required 533 electric heaters. The class of building and tenant may be determined from the fact that the individual apartments are said to sell for from \$6,000 to \$34,000 each and it is further stated that by far the major portion of the apartments are already sold, despite the fact that the building will not be ready for occupancy until about May 1, 1924.

The value of such equipment to all branches of the electrical business cannot be overestimated. The total list price of the equipment, exclusive of fixtures and installation cost and including only those items mentioned above is said to be in excess of \$228,000. The load for the central station will approx-



E. C. Ebert, to whom is due credit for the complete electrification of the Security Apartments.



imate 2,500 kw., excluding lights, elevators, etc., and the wiring job will undoubtedly be the largest ever let for a building of this type. The sales possibilities, therefore, to all branches of the industry in connection with this type of equipment can readily be seen.

A significant fact in connection with this building is that there will be no chimney required other than that for the incinerator. A glance at the picture herewith shows the symmetrical effect resulting from the absence of unsightly stacks and chimneys and the saving in space is measured in dollars and cents. There is, too, saved the enormous cost of constructing these flues and the cost of keeping them cleaned out.

The Electric Development Company of California, with head offices in the Underwood Building, San Francisco, has recently opened a branch office at Healdsburg. This branch office is in charge of S. Hilgerloh who has been engaged in business in that territory for over thirty years. The company is also considering the opening of branches at San Rafael and Sacramento. The Santa Rosa branch of the concern is now in charge of Ralph W. Hickey. The Electric Development Company of California engages in heating and power engineering work.

The Pacific States Electric Company has recently announced the opening of new offices and a warehouse at South 122 Lincoln Street, Spokane, Wash.

The Security Apartments—the ten-story community apartment house being erected in Hollywood. This building will be completely equipped with electric ranges, water heaters, refrigerators and combination dish washers and sinks and will be electrically heated throughout.

Giant Electric Heater Attracts Crowds' Attention

Manufacturer in Cooperation with Local Electrical Dealers
Displays Ten Kilowatt Heater which Advertises Product

An example of how considerable attention was recently secured for an electric heater is presented by the Simplex Electric Heating Company. This concern, which is the manufacturer of the Sunbowl electric heater, developed a greatly enlarged reproduction of the standard heater that was designed to be used as a means of securing attention. The heater, known as the "Giant Sunbowl," is 6 ft. in diameter, weighs 150 lb., is of 10-kw. capacity and operates at 220 volts. The heat that is given off is so intense that it can be felt at a distance of 100 ft. and at 50 ft. the heat is so extreme that it occasions pointed remarks. The heater is swiv-

The idea of using the large heater for publicity purposes was started last year when the Simplex Electric Heating Company placed the first one of the "Giant Sunbowl" on a truck which was supplied with a storage battery. This truck was driven through the streets of several eastern cities and attracted so much attention that the company manufactured several more of the large heaters and this September started the trucks on a comprehensive tour of the eastern section of the United States. Plans are also under way to carry the publicity work on in several western cities.

This year the large heater is mounted on a 3½-ton gasoline truck equipped with a Buda gasoline engine driving a 20-kw., 220-volt generator. Energy for operating the "Giant Sunbowl" and four smaller units is secured from this generating equipment. Three of these trucks have been put on the road, spending several days in the larger cities and stopping in the intermediate communities to permit the public to view the unusual sized heater. In addition to the five heaters that are mounted on the truck, there is a super-carton, which is a large sized reproduction of the carton used in delivering the regulation heater. This carton carries effective advertising on its faces and at night is illuminated by shielded lamps. The tail-board of the truck is also used to carry the message to interested spectators. The truck is operated by a uniformed chauffeur who is accompanied by a demonstrator. In each territory the truck is in charge of the company's representative, who arranges for its local use and looks after the cooperative publicity and display activities of the local dealers. It is the company's intention to have thirteen such trucks engaged in the campaign.

Wherever the truck has gone the giant heater has attracted considerable attention and sales of heaters have been stimulated to a marked extent. The displaying of the heaters at the southern California fairs has also caused considerable comment.

THANKSGIVING THOUGHTS

By JOE OSIER

"Thepeak for yourthelf, John," cooly lipped Priscilla as she basted a turkey with one hand—

And a little Pilgrim with the other—

While listening to John Alden (a proxy for Miles Standish) blow his chesty chieftain up to 180 pounds, in an effort to make him look like a comer to the lady of his heart who—by the way, was—

The fair Priscilla.

"Thepeak for yourthelf," she repeated and John, in spite of the fact that he was double-crossing his Captain and giving the sturdy Standish a—

Dirty deal from the bottom of the deck—

Spoke for himself and won, placed and showed in the Thanksgiving handicap run in Plymouth that day.

But to come to the point: On this Thanksgiving Day, putting aside all thoughts of back-biting, hammer wielding competitors and—

Overhead which has knocked more than one firm for seven short circuits—

Men of the Electrical Industry in Plymouth, Podunk, Pumkin Center, Pittsburg and other—



"Let's all give thanks that we haven't run from Progress."

Sites and cities in these United States should—

Arise from the festal board, before the operation on the National bird is performed, and—

Return thanks for the blessings which have showered down during the past twelvemonth.

They should return thanks for the volume of business cared for; for the prices which have obtained and for the profits in the pouch—if any).

And the loyal employees, who have fronted the fray and fought the battles, shift in and shift out, should not be forgotten.

They should be thanked by word of mouth and otherwise.

Further, the electrical manufacturing companies—their representatives—their National advertising campaigns, should not be overlooked. In fact, an extra portion of blessing should be extended to these sources for the advice, guidance and cooperation so generously tendered.

And, before "Amen" is said, say a few words for the National as well as the State and Local Associations. The executive officers and the willing workers in these organizations have done much to elevate the industry—

To the peak where it now pants.

All the above being done to a turn, thanks should be returned to the household Cinderellas who—

Are becoming too proud and smart to sacrifice their girlish figures in order that a—

Few cents be saved.

Return thanks that the lamps of the ladies have been lighted and that the squawk, resounding from end to end of this broad land, will not be silenced until every home is electrically equipped and accoutered.

Then, after everything has been said and everyone helped—

Adjust the napkin and the anatomy, slip your clutch and—

Lay to't.



This giant heater formed the center of the Simplex Electric Heating Company display at several fairs held in southern California during the last month.

eled so that the attendant operating it may direct it in any desired direction that the greatest attention may be attracted.

During the past month, R. C. W. Libbey, Pacific Coast representative of the manufacturer, has been displaying one of these enormous heaters at a number of the leading fairs in southern California. The "Giant Sunbowl" is placed in the center of the company's display booth and the regular type heaters are grouped around the main attraction. In this way attention is attracted by the large heater and is held by the smaller devices which the company has for sale.

In several instances the large heater has proved so interesting to visitors that they have requested information concerning the use of it. An orchard-ist, on seeing the 10-kw. heater, questioned Mr. Libbey concerning the use of the heater as a protection to his orange grove during frost periods. A doctor in Los Angeles considered using the powerful heater as a means of giving electric baths to his patients.

INDUSTRIAL NEWS



Permits and Licenses Issued by Federal Commission

The issuance of a license and a preliminary permit for two projects in the West has been authorized by the Federal Power Commission. Franklyn L. Hutton, Fred W. McNear and Frank C. Dougherty of San Francisco have been given a license for 50 years for a power project within the Tongass National Forest on Thomas Bay, about 22 miles north of Petersburg, Alaska. The project will consist of a reservoir, a conduit approximately 14,259 ft. long, a power house and a pulp mill. The proposed ultimate installed capacity will be approximately 30,000 hp.

A preliminary permit for a period of 15 months has been issued to Mary I. Crocker and J. W. Preston, Jr., of San Francisco, for a power project on the Mokelumne River and Sutter Creek within the Stanislaus National Forest in California. The project consists of three reservoirs and three conduits leading to three power houses. The first conduit is approximately 22 miles in length with a capacity of 400 sec.-ft., the second approximately 7 miles long with a capacity of 750 sec.-ft. and the third approximately 9 miles in length with a capacity of 350 sec.-ft. The first power house is to use a head of 1,175 ft., the second a head of 632 ft. and the third will operate with a head of 565 ft. It is estimated that the total ultimate installation will be approximately 48,000 hp.

The commission has also issued a number of licenses for high tension transmission lines and for several smaller hydroelectric projects. The smaller projects plan the development of power for local uses only.

Discuss State Power Ownership at Seattle Meeting

Whether it is better to extend the public ownership of utilities throughout the state of Washington, or to encourage private capital to invest money in the state was the issue involved in a recent public discussion of the hydroelectric power question at a meeting of the Seattle Municipal League in Seattle, Wash. This was one of several meetings at which the power question has been discussed.

A. S. Goss, master of the Washington State Grange, was one of the speakers, and he stated that organized farmers of the state favored the public development and ownership of the hydroelectric resources in the state. They are opposed to the Reed bill, which is a state power bill, he said, because they believe it will retard development, but they are not ready to endorse the bill, prepared by the Public Ownership

League, or any other plan now under discussion, because of the diversity of interests and opinions.

Oliver T. Erickson, representing the Public Ownership League, which is backing a state power initiative bill, discussed this bill, by which it is proposed to authorize public development and ownership of power plants all over the state, each plant to become a part of a "super-power system." Mr. Erickson said the plan is similar to that under which the hydroelectric power commission in Ontario is developing the resources of the province on a large scale.

Norwood W. Brockett, representing the Puget Sound Power & Light Company, presented the side of the private power companies, and declared that the people of the state should make a very careful investigation of the Ontario system before adopting it.

Discussing the Ontario system, Mr. Brockett said: "In Quebec, adjoining the province of Ontario, and about the same size, they are getting better results through private ownership and operation. The premier of Quebec, discussing the Ontario plan, says he prefers to permit private capital to develop the hydroelectric resources of his province to encouraging the investment of foreign capital. In this statement, the premier says electric power rates in Ontario are 30 per cent higher than in Quebec, and that in the Niagara district, the rate charged by the publicly owned Ontario plants is 40 per cent higher in some cases than the rate charged by private companies."

Mr. Brockett said that interests he represented, if let alone, would invest more than \$125,000,000 of new money in the state in the next ten years, and put new property on the tax rolls instead of taking other property off. He said that honest investigation will show that the advantage is on the side of private development.

Commercial Section Meeting Is Held at Fresno, Calif.

On Oct. 19 the Commercial Section of the Pacific Coast Electrical Association held its first meeting of the year at the Hotel Fresno, Fresno, Calif. Meetings of the various sub-committees were held and topics of interest to the entire industry were discussed in detail.

Many papers were assigned for preparation and presentation at the next meeting. A. E. Holloway, general chairman, presided and in his address to the sub-chairmen asked for united support and effort for the upbuilding of the industry. Appointments and subjects to be considered by the sub-committees during the ensuing year will be given in an early issue of the Journal of Electricity.

Reorganization Made in Denver Commercial Department

Close on the heels of the recent merger of the Denver Gas & Electric Light Company at Denver, and the Western Light & Power Company, at Boulder, Colo., to form the Public Service Company of Colorado, comes the announcement of a definite departmental organization of the new company's commercial department at the Denver station.

Widespread interest has been developed as a result of the new plan because it is felt that the different branches of the electrical industry at Denver and the activities of the Electrical Coöperative League of that city are more definitely correlated than ever.

The commercial department is in charge of R. G. Gentry. The new arrangement creates two distinct departments in the commercial department, in addition to the already existing power and production departments in charge of F. F. McCammon and Clarence Keeler respectively. The newly created departments are the domestic appliance department in charge of J. A. Miller, and the commercial lighting department in charge of C. E. Addie.

Heads of all the electrical departments, as well as the four distinct departments specializing in gas, have separate corps of salesmen, who are employed to push their particular line.

All department managers, as heretofore, are held directly responsible to the commercial manager. The same is true of the floor sales department, handling both electric and gas appliances, which is managed by Jack West. A. B. Spencer has been placed in charge of all window trims in the Denver station.

Salt Lake City to Have Third Electric Home Exhibit

The electric home committee of the Rocky Mountain Electrical Cooperative League, after investigating the possibilities and the advisability of another electrical home exhibit in Salt Lake City, Utah, has submitted a favorable report. The electrical home will be built by D. A. Jenkins, and will be the third one to be exhibited. It will be opened about May 1, 1924.

The League's electric home committee consists of E. H. Eardley, manager of Eardley Electric Company, chairman; L. B. Johnson, of the Salt Lake City branch of the General Electric Company; E. A. Evans, of the Salt Lake City branch of the Westinghouse Lamp Company, and G. R. Randall, manager of the Salt Lake Electric Supply Company.

Public Utility Presents Feature Display at State Fair

The Utah Power & Light Company's annual exhibit in the Manufacturers' Building at the Utah State Fair, held at Salt Lake City during the week beginning Oct. 1, was the subject of a great amount of interest and favorable comment. A space 16 x 20 ft. was enclosed in lattice work, with a pergola effect over the centers on all four sides. Tables were built in the corners, and

Christmas Advertising Material Prepared for Industry

The Society for Electrical Development, Inc., has produced special advertising material for the Christmas season which should serve to increase the sales of electrical appliances at that time. All printed matter is in the usual Christmas colors of red, white and green and embodies the holly and Santa Claus designs. Lantern slides similarly colored have also been prepared and

Uniform Utilities Laws Favored by Bankers' Committee

The uniformity of state laws regulating public utilities is advocated in a report submitted to the Investment Bankers' Association of America by the Association's committee on public utility securities. The committee also urged that all state commissions be given authority over the valuation, rates, service, and capitalization of the privately owned public utility plants and that these plants be required to publish full financial reports of their operations.

The report states in part that, "when administered with the broadest powers and in a judicial manner, state-wide regulation of public utilities has been conclusively proved, in the opinion of the committee, to afford the best guarantee which investors have in this country for a maintenance of that integrity of investment necessary for a ready flow of money into the business."

The committee recommends the sale of stocks to local investors and particularly consumers, stating that this action will be helpful in reducing political attacks on the utilities. The report states that the raising of funds for public utilities has been made difficult because of the general systems of taxation throughout the United States. High taxes have forced money from taxable securities into non-taxable investments according to the report.



Booth of the Utah Power & Light Company at the Utah State Fair held in Salt Lake City recently.

one on each side, making a total of six display tables.

One of the tables was used for the purpose of telling the public about the company's preferred stock, displaying a miniature power house to which was linked a preferred stock certificate. In another part of the booth the Westinghouse Cozy-Glow Kid, in papier-mache, was placed in a standing position before an electric heater. This chubby youngster revolved on a small turn-table, attracting considerable attention.

One of the six tables was set to represent a breakfast table, featuring a toaster, percolator and waffle iron. Each of the tables carried an individual display.

A spider web was built as a ceiling over the entire booth. In the center of the web was placed a Eureka vacuum cleaner, representing the spider, and a number of large artificial bugs were fastened in the web. These bugs were labeled "Filth," "Dirt," "Disease," etc.

To secure registration at the booth a Eureka vacuum cleaner was given away to the person guessing the correct amount of dirt that would be taken from a rug placed in the public aisle-way along one side of the booth. Guesses were turned in on cards, and about 3,000 contestants participated. The winner was Miss Lucille Kunz of Magna, Utah, whose guess of 7 lb. 3 oz. was the correct figure.

carry a message of the utility and desirability of appliances for gifts. The phrase "Give Something Electrical" is carried on all printed matter and on many of the slides. Other slides carry the slogan "Make this an all-electrical Christmas."

In addition to the above there has been prepared an attractive booklet containing eight pages of selling text and many clever illustrations showing appliance grouped and carrying the story of application by picture. Poster stamps, gummed and perforated, for attaching to letters and packages, will also be supplied. The billboards will also be utilized and 24 sheet posters have been printed carrying a picture of Santa Claus in a holly wreath, bearing the slogan "Give Something Electrical" and having a space for the exhibitor's name. This material is furnished at reasonable cost by the Society for Electrical Development, Inc., 522 Fifth Avenue, New York City.

A forest fire on the afternoon of Oct. 29, threatened to destroy the City of Seattle's hydroelectric plant on the Cedar River. Firemen and municipal employees fought the blaze for a number of hours and succeeded in saving Camp No. 2, near the power house, and a shift of the wind was reported to be responsible for the saving of the power house itself.

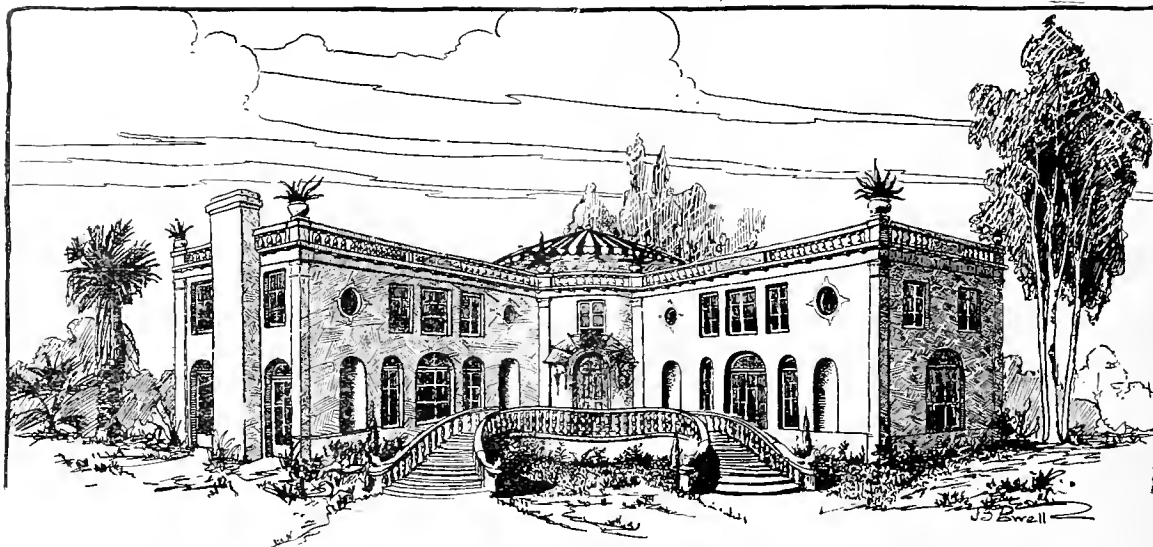
San Francisco Representative Opens New Building

Maydwell & Hartzell, Inc., San Francisco representatives of automotive, electrical and hardware manufacturers, has recently moved to a new location at 158 Eleventh Street in that city. In this building the offices and warehouse of the concern will be consolidated.

The company has announced that by the consolidating of the offices and warehouse in one building it will be better able to serve its customers. In the new location a specialist will be employed to supervise each department.

The San Francisco section of the American Society of Mechanical Engineers will hold a joint meeting with the University of California student branch of the organization on the university campus at Berkeley, Calif., on Nov. 27. F. H. Cherry will speak on "Electrolysis, or the Electrical Resistance of a Film of Oil." Professor LeConte, of the University of California, will speak on "A Research Problem in Hydraulics." In addition to these two subjects, several of the seniors in mechanical and electrical engineering, will give brief statements of thesis problems upon which they are engaged.

Work on the American Falls Dam will be started about July 1, 1924, according to Guy Flenner, managing director of the Idaho Reclamation Association. The work of moving houses from the old townsites of American Falls, Idaho, will be started about the first of the year. Four hundred and fifty buildings will have to be removed before the dam can be built. It is estimated that about eight hundred thousand dollars will be spent in the neighborhood of American Falls during the next year.



The all-electric home "under the Cross at Hollywood," dedicated under the auspices of the California Electrical Cooperative Campaign.

New Electric Home Will Be Built in Hollywood

Laying of Cornerstone for All-Electric Home Attracts Large Amount of Attention in Southern California City

The all-electric home is no longer a novelty in the West but has instead reached the point of great popularity. Few of the major cities or towns but that have within their limits one or more of these up-to-date residences and they are built and absorbed into the community without comment. However, occasionally there is one of these homes so notable in its conception and planning that it is made a special event. Such a one is the new electric home "under the cross at Hollywood."

Preceded by a benediction offered by the Rev. Neal Dodd, this newest all-electric home was dedicated on Sunday afternoon, Oct. 14. The house is located on one of the beautiful foothills of Hollywood.

The dedicatory exercises for the occasion were under the auspices of the California Electrical Cooperative Campaign and were successfully arranged by Frank W. Smith, southern California representative of that organization. Carl Bush, president of the Hollywood Chamber of Commerce, presided and after a brief address on the development of Hollywood introduced in turn the various speakers of the day. The first speaker was Harry L. Harper, Los Angeles manager, Western Electric Company, who reviewed briefly the history of electrical development and of its application to commerce and the home. Mr. Harper pointed out clearly the many comforts which electricity had provided for the home and noted the improvement in living conditions in all communities where electricity was available for domestic use.

Mr. Harper was followed by William Chapin, secretary of the Hollywood Hills Association, who spoke briefly on the necessity for modern homes for the multitudes of people who are taking up life in the West. He also told of the efforts of the association to make Hollywood a place of homes for people of stability and stated that electricity in its domestic application offered one of the most effective means to that end. Burdett Moody, of the Bureau of Power and

Light, Los Angeles, spoke on the generation, transmission, distribution and domestic application of electricity.

An unusual feature of the dedication of this home was the laying of the corner stone. This was conducted under the direction of Mr. Bush who first placed within the vault provided a sealed metal box containing the following: copies of the daily papers of Oct. 13, 1923; a copy of the electrical specifications of the City of Los Angeles; a copy of the Journal of Electricity issue of Oct. 1, 1923; copies of Electrical Merchandising, The Delineator and other modern home magazines. It is planned to allow these papers to remain in the vault until Oct. 14, 1943, and then to remove them and to compare the data and practice of this date with the practice of twenty years hence. It is expected that development will by that time be so extensive that there will then be no home which is not completely electrified and that such a feature as the laying of a corner stone in an all-electric home will be indicative, in retrospect, of the progress which has been made.

Much of the success of the occasion is due to Howard L. Reed, the architectural builder who planned and designed the home and who cooperated gladly not only for the complete electrification of the building but also for the dedicatory exercises.

Tieing in with Mr. Reed's efforts, the California Electrical Cooperative Campaign issued several hundreds of invitations to the dedication and also prepared circulars descriptive of the property which were distributed and mailed in large quantities. The event was also advertised in the newspapers and was also treated by the papers as a distinctive news event. Photographers were sent to secure pictures of the ceremonies. In addition, and in order to bring the matter to the attention of the entire electrical fraternity in the city, a full page in "Sparks"—the organ of the Los Angeles Electric Club—was given to the announcement of the exercises and the

Analysis Made of Residential Consumers' Accounts

That the average residential consumer who uses an electric range and water heater on the lines of The Washington Water Power Company pays a monthly bill of \$9.18 is the conclusion that the company has reached as the result of an analysis of these accounts. The survey was made on accounts for the month of March, 1923, and covered a total of 473 residential consumers using both range and water heater. The accounts were selected at random and represent approximately 10 per cent of the consumers of the company that are using electric ranges and water heaters.

The analysis showed that the average residential consumption per month was 195 kw-hr. and that the consumption varied from 48 kw-hr. to 756 kw-hr. The average bill for electric service, exclusive of service to electric water heaters, was found to be \$6.65 per month. The average charge for service to water heaters was \$2.53.

New Street Lighting System to Be Installed in Roseburg

Work on the new street lighting system of the city of Roseburg, Ore., is being rushed in order that the city may have the benefit of the installation during the coming Christmas season. Sixty Westinghouse ornamental street lighting units with capital extensions and Monex glass are to be installed. Each post will carry 400 cp. and will be placed so as to give a total of 3,200 cp. to the block.

The energy will be supplied by a 2,300-volt underground series system, each post carrying its own transformer. The Hudson Electric Company of Roseburg is doing the work and expects to have the system in operation before Dec. 1.

The Pacific Power & Light Company is having the Grant Smith Company test the bed rock of the Deschutes River in the vicinity of The Dalles, Ore., for a dam in connection with the power site for the company. Construction of the new power plant will start soon.

New Type Electric Dredges Are Operating in California

The first electric dredges of their kind to be operated in California are being used in the construction of the huge levees which will protect the district in the vicinity of Meridian, Calif., from the flood waters of the Sacramento River and Butte Creek. These three dredges will handle something over 1,250,000 cu. yd. of material before the work is completed.

To supply power for these dredges it was necessary for the Pacific Gas and Electric Company to build a high tension line five miles long. Portable transformer sets, mounted on trucks, are used to step down the voltage and these trucks will be moved from time to time as the work progresses. The pole line itself will also be moved as necessary.

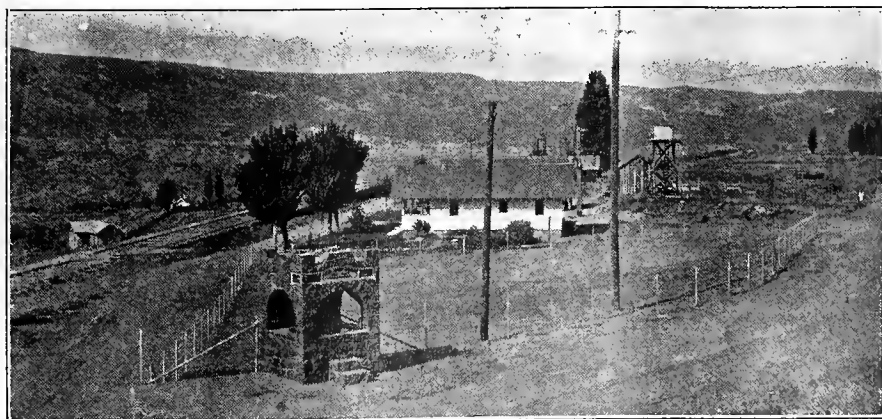
The machines are of 200 and 250-hp. capacity and handle from five to six cu. yd. of material at a scoop. Each dredge is operated by one man who handles an average of one bucket of earth per minute. Time is taken four times a day for moving the dredge and for meals and an hourly average of 250 cu. yd. of material is consistently maintained for each machine. This material is taken from the pit and lifted onto the levee.

The range of boom varies on the dredges from 100 ft. to 140 ft. and one machine follows the other. When the last machine has worked on a section the embankment is complete and the top of the levee is evened and crowned as the work proceeds in order to prevent water standing thereon.

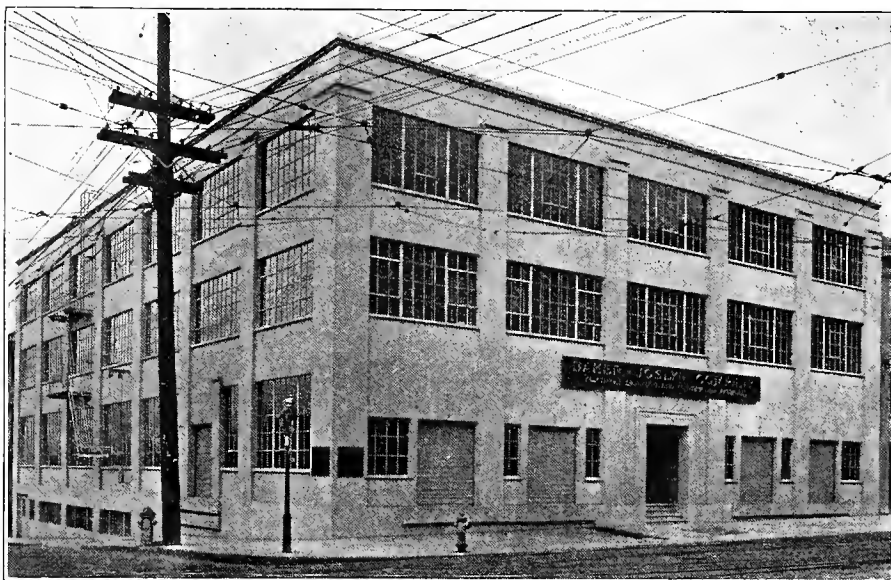
Travelers Are Served by Power Company's Fountain

In an endeavor to beautify the surroundings of the operators' cottages at the Malad power plant of the Idaho Power Company, near Bliss, Idaho, that company has recently cleared a plot of ground and has put it under fence. Boulders and sagebrush were taken from the plot and it has been seeded with blue grass.

At the corner of the plot, which adjoins the state highway, a public drinking fountain has been erected. The fountain is built of native lava rock set in black mortar with joints outlined in white. Two bubbling fountains supply cool spring water and from the pool the tourist may secure water for any purpose.



Site of the Malad Power House of the Idaho Power Company, showing the fountain and grass plot that have recently been placed between the operators' cottages and the highway.



New home of the Baker-Joslyn Company in San Francisco.

The fountain carries a sign which states that this is the site of the Malad Plant of the Idaho Power Company and gives the distance to various cities which are located along the highway. These signs, as well as the fountain itself, are illuminated at night making the fountain serviceable twenty-four hours of the day. Considerable favorable comment has been caused by the installation of the fountain and the cleared plot for which the Idaho Power Company is responsible.

Orders booked by the Western Electric Company in the first nine months of 1923 totaled \$211,185,000, or \$77,064,000 more than those in the corresponding period of 1922. Billings aggregated \$178,750,000, or \$26,233,000 more than for the corresponding 1922 period. The foregoing billings were at the annual rate of \$235,000,000, compared with \$211,000,000 in 1922.

Robert M. Spurck, designing engineer, oil circuit breaker department of the General Electric Company, Schenectady, N. Y., was the guest of honor and speaker at the Nov. 2 meeting of the Denver section of the American Institute of Electrical Engineers. Mr. Spurck spoke on "Design and Characteristics of Oil Circuit Breakers." The talk was illustrated with lantern slides.

Three-Story Building Occupied by Baker-Joslyn Company

The Baker-Joslyn Company has recently moved into new quarters in San Francisco. The company has had built for it a specially designed three-story and basement building at 490 Second Street and will maintain all of its San Francisco offices and stock in this location.

The basement of the new building is used for storing heavy pole line hardware and insulators while the lighter equipment that is stocked by the concern is warehoused on the main and second floors. The third floor will be used as a reserve space for the present, but is suitable for storing stock when conditions necessitate.

Offices of the concern are located on the second floor. These are all heated electrically and the company has paid particular attention to the lighting of these offices.

The shipping department is located on the main floor and has four doors at which trucks may be loaded. A spur track is adjacent to two of these entrances and cars may be unloaded directly to either the first floor or the basement. Trucks may also unload at a basement entrance.

To Install Electric Hand Dryers in Seattle Building

Twenty-eight Airdry machines will be installed in the Dexter Horton Bank Building in Seattle, Wash., when that building is completed. The machines are designed to eliminate the use of towels as they supply warm air that may be directed to dry either the hands or the face.

The machines are operated entirely by electricity and are designed to operate with a low consumption of current. The manufacturer of the "electric towel" claims that by using the machines, in place of fabric or paper towels, a saving of between 50 and 70 per cent may be effected.

The Dexter Horton Bank Building is the latest of the larger buildings to specify the equipment. The installation was ordered after tests had been made covering a period of several years.

General Electric Company Makes Changes in Sales Branch

Important rearrangements of certain fields of work within the sales branch of the General Electric Company, involving a change of name of two departments, have recently been announced and became effective Nov. 1. In connection with these changes Dana R. Bullen, for a number of years manager of the supply department, has been advanced to the position of assistant vice-president on the staff of the vice-presidents in charge of sales of general apparatus and supplies.

What has hitherto been known as the lighting department becomes the central station department, and the name of the power and mining department is changed to industrial department.

C. W. Stone, manager of the former lighting department, will continue as manager of the central station department. M. O. Troy, formerly manager of the transformer sales department, is appointed executive assistant manager of the central station department, with headquarters at Schenectady, and W. M. Stearns, formerly one of the assistant managers of the supply department, becomes assistant manager of the central station department, in charge of the street lighting, miscellaneous switch-board device, holding companies contract, and miscellaneous supply and order sections.

R. D. Mure, assistant manager of the former lighting department, becomes assistant manager of the central station department in charge of apparatus sales. F. G. Vaughn and present staff are transferred to the central station department, and continue in charge of the meter business of the company, retaining the title of sales manager, meter department. Similarly, W. S. Clark and present staff, in charge of the company's wire and cable business, are transferred to the central station department.

The railway supply section and present staff, conducting the company's business on railway motor and control parts, railway line material and rail bonds, are transferred from the supply department, of which E. P. Waller is manager.

The industrial heating device, industrial control, mine locomotive and stationary motor repair parts, and Fabroil, Textoil and Textolite Gears sections of the supply department are transferred to the industrial department, of which A. R. Bush, manager of the department under its former name of power and mining department, continues in charge.

N. R. Birge, formerly one of the two assistant managers of the supply department, is assigned to the staff of the president of the company. Mr. Birge will assist in supervision of associated manufacturing companies, being associated with D. C. Durland in this work.

Portable Substations Built for Motion Picture Studio

Two portable electric substations each of which can supply 150 kw. of direct current, have been purchased from the Westinghouse Electric & Manufacturing Company, by M. C. Levee of the United Studios, Hollywood, Calif. Each of the portable substations is equipped with two 75-kw. d.c. generators; a 250-hp.,

2,200 or 4,400-volt, three-phase, 50-cycle motor; a combination two-generator control panel; complete starting equipment for either 2,200 or 4,400-volt operation; a high tension tower and disconnect fuse blocks.

The substations will be used on the United Studios "lot" and on locations where direct current is not available. Each substation is mounted on a 10-ton Hercules trailer, which is fitted with special jacks so that the machines may be lifted from the body of the truck and supported directly on the road bed. An ordinary motor truck is used in towing the trailer from place to place.

By using the portable substations on the motion picture company's "lot" a considerable saving has been effected due to the fact that the necessity for installing a large amount of wiring has been eliminated.

The Washington Coast Utilities is planning extensive line improvements costing \$20,000, according to R. U. Muffley, general manager of the company. In the commercial district of Port Townsend, Wash., the entire line service will be revised and will be done as opportunity permits. The manufacture of gas will be discontinued and in its place electricity will be substituted for cooking and heating at a rate considered eminently fair and just.

Application has been filed with the Washington state hydraulic engineer by E. C. Miller, of the Miller Engineering Company, Seattle, Wash., for a permit to use the waters of the South Fork of the Nooksack River for the development of hydroelectric energy. The project when completed will generate about 17,000 hp., according to present plans.

Electric Cooking School Is Held in Sacramento, Calif.

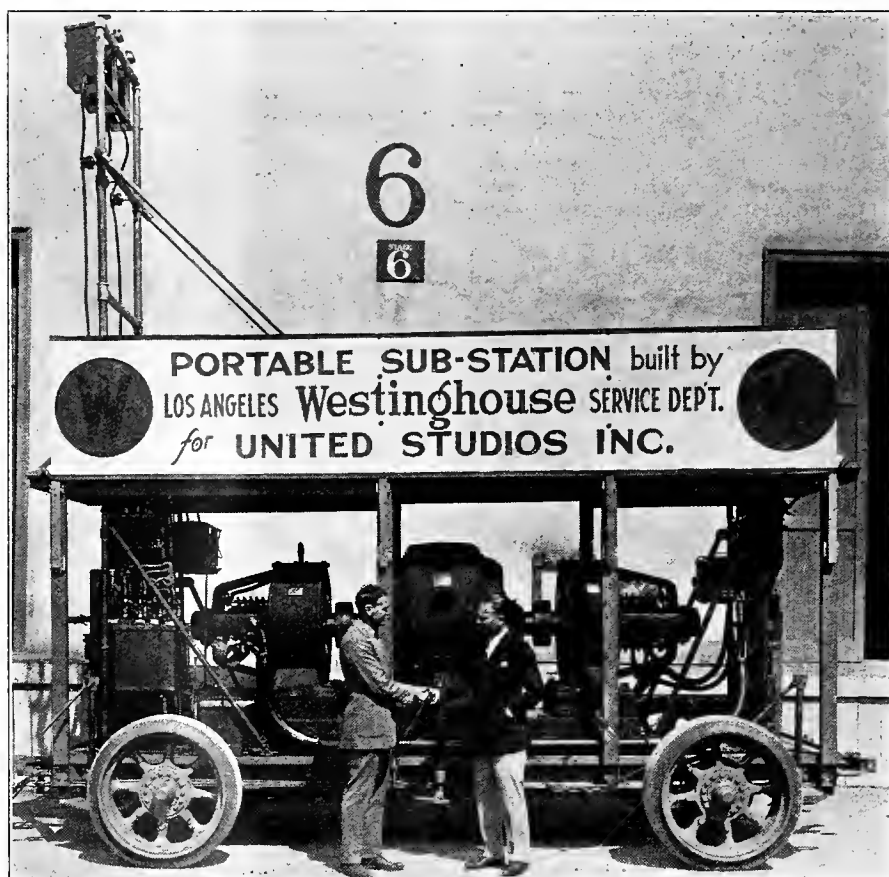
During the four days from Nov. 6 to 9, the Sacramento Bee held a free electrical cooking school in Sacramento, Calif. The classes were held from 2 to 4 each afternoon, in the Masonic Temple Auditorium.

Miss Bernice Lowen, home economist from the Chicago office of the Edison Electric Electric Appliance Company acted as instructor for the school. She came to Sacramento following a tour of Oregon and Washington where she has been conducting other electrical cooking schools.

A different menu was prepared each day by Miss Lowen, as she told her audience what to do to avoid the thousand and one little mistakes that cause cooking failures. A question box was provided at the hall so that individual problems might be discussed and answered by the instructor.

The culminating feature of the school was a baking contest held Nov. 9. The contest was divided into three divisions—bread, cake and pie. The prize list included a Hotpoint-Hughes super-automatic range, a Meadow Lark electric washing machine and a Columbia vacuum cleaner as the first award in the three sections.

Each day during the week, two pages of the Bee were devoted to the school, giving news articles, the menu for the day, prize list, rules, etc. The remaining space was taken by advertisers. Reports from electrical dealers in Sacramento indicate that the school has laid the foundation for a sales campaign on electric ranges, and that it has helped immensely in spreading the electrical message.



New portable substation which has been built for the United Studios for supplying direct current on locations where only alternating current is available.

Value of Seattle Substations Is Subject of Dispute

The Puget Sound Power & Light Company of Seattle, Wash., has requested Mayor Brown of Seattle to certify, on behalf of the city, that arbitrators, who have been named to appraise two railway substations to be taken over by the city, cannot agree upon the selection of a third member. Both the City of Seattle and the power company named seven arbitrators. Each and all of these have been rejected by the other party. The Puget Sound Power & Light Company wishes to have the mayor certify that the third arbiter cannot be chosen in order that it may apply to Chief Justice John F. Main of the State Supreme Court to supply the third member. Mayor Brown, however, has been advised by T. J. L. Kennedy, corporation counsel, that he has no authority to certify this on behalf of the city, except under ordinance passed by the city council.

The three appraisers are to fix the value of the substations to be taken over by the city with the first block of 5,000 kw. of the power service now being sold to the municipal railway by the company. The contract by which the city bought the railway lines gave the city the right to reduce the contract in 5,000-kw. blocks, provided the city paid the company for the substations. The company has the right, on five years' notice, to reduce the power service without requiring the city to buy the substations. The city has served one year's notice of its intention to take over the first block and substations during this month.

Mayor Brown has recommended to the city council that the two substations be secured by the city through condemnation proceedings, since no success in arbitration has been obtained. The question of valuation of the two substations involves chiefly a question of obsolescence, the city asserting that the equipment in the substations is no longer standard.

Display Denver Electric Home to Public for a Week

Denver's next electric home, at 1635 east Seventh Avenue, is scheduled to be opened for public inspection by the Electrical Cooperative League of that city on Nov. 18. The home was built by the T. D. Harris Investment Company and was turned over to the League for exhibition purposes. It is a modest five-room bungalow with finished basement and is of the Colonial design. Interior decorations and furnishings are being provided by the Denver Dry Goods Company and electrically operated musical equipment has been furnished by the Knight-Campbell Music Company.

This is the second electric home featured by the Denver League, the first having been exhibited more than a year ago at Seventh Avenue and Clayton Street to some 37,000 people. The new home will be open to the public for one week's time preceded by a private showing to Denver architects and prominent builders.

Literature provided by The Society for Electrical Development, illustrating the wiring and lighting features, will be furnished all visitors to the new home. Thirty-five appliances furnished

by jobber and distributor members are to be displayed during the exhibition. The wiring consists of 78 outlets, as follows: 21 convenience outlets, 25 switch outlets, and 32 lighting, 10 of which are bracket and 22 ceiling outlets. The installation includes six sets of 3-way switches.

Industries Exposition Will Be Open to Public Nov. 17

The third annual California Industries Exposition, to be held in the San Francisco Civic Auditorium, will be opened to the public on Nov. 17. For the first time in the history of the Exposition, the electrical industry will have a separate section in which its exhibits will be housed. This section, to be known as the Palace of Electricity, will be located in the Polk Street Hall of the Civic Auditorium.

Special effects both illuminative and decorative have been installed in the section assigned to the electrical industry and a particularly pleasing result has been obtained. Twenty-four concerns, representing the electrical industry, will have displays in the Palace of Electricity when it is opened to the public.

The Exposition will be open to visitors until Dec. 2. Special arrangements have been made for securing a large attendance during the showing of the articles on display.

Plan Recodification of Building Laws in Denver, Colo.

Plans are being made in Denver looking towards the complete recodification and revision of the building laws in that city. Principal factors justifying such a change are said to be the early adoption of a series of zoning laws and the necessary standardization of present building regulations.

The new electrical code of the national underwriters is considered another pertinent reason for the revision. Although the provisions of the new code have already been put into effect by C. F. Oehmler, chief electrical inspector, there are improvements which he believes can best be made by an entirely new set of regulations.

To assist in the development of the new local electrical code and to advise on other matters pertaining to the electrical inspection department, it is understood that Mr. Oehmler contemplates the appointment of an advisory board from the representative electrical interests of the city.

The completion of the El Dorado plant of the Western States Gas & Electric Company is anticipated to take place before Christmas, according to reports from the site. This plant will add 27,000 hp. to the generating capacity of the company. Twin Lakes Reservoir, impounding 20,000 acre-feet of water, is completed at the present time.

Manufacturer members of the Electrical Cooperative League of Denver, Colo., as the result of recommendations made at the group meeting last month, held a dinner meeting at the Denver Athletic Club, Nov. 6, at which representatives of twenty-five firms were present. Harry Randall, district manager of the General Electric Company, presided as chairman.

Books and Bulletins

PRINCIPLES OF DIRECT CURRENT MACHINES

By ALEXANDER S. LANGSDORF. 5¹/₂ x 8 in. \$4. Published by McGraw-Hill Book Company, New York. 470 pages; 390 Figures.

This text book which is now in its third edition, is essentially a treatment of the fundamental principles underlying the design and the operation of all types of direct current machinery. According to the author—"while the book does not aim to be a text on design, it is unquestionably in the interest of thoroughness to place before the student, specific illustrations of applications of the general principles of the subject, which may hold his interest and enlarge his horizon, even though the field of design may not attract him as a life work."

The first sixty-six pages of the text are devoted to a comprehensive treatment of the general laws and definitions which are immediately applicable to the theory of direct current machines. The dynamo is treated in the second chapter wherein the outstanding features of operation and design are briefly pointed out. The next three chapters give a good analysis of armature windings, the magnetization curve and magnetic leakage and armature reaction. The operating characteristics of generators and of motors are then treated in detail. The use of curves plotted along three axes of coordinates for the purpose of illustrating the characteristics of direct current machines is of special interest, and serve their purpose admirably. An excellent presentation of commutation follows, fifty-five pages being devoted to this subject. Linked with this the next chapter treats of methods used for the compensation of armature reaction and improvement of commutation. Of particular interest to operating men is the next chapter which is devoted to efficiency, rating and heating. The text concludes with a description and an analysis of boosters, balancers and transmission lighting systems.

As an aid to a more thorough understanding of this important branch of electrical engineering, a collection of illustrative problems is included at the end of each of the first ten chapters.

In reviewing this text one is struck by the thorough treatment of each subject. The mathematical analysis is good, but in addition it is quite generally preceded by a full and well illustrated discussion of the physical facts to be dealt with and their relation to one another.

A book such as this one should not only be of value to students of electrical engineering, but to practicing engineers as well.

E.R.S.

The Bowie Switch Company of San Francisco has issued Bulletin No. 15 which contains a description of the company's line of high tension switching apparatus.

Meetings

Dr. Steinmetz Paid Tribute at Engineers' Luncheon

Eulogizing the life of the late Charles P. Steinmetz, C. R. Higson, assistant to the chief engineer of the Utah Power & Light Company, was the principal speaker at the weekly luncheon of the All-Engineers' Club at Salt Lake City, Utah, on Oct. 29.

Mr. Higson gave a biographical sketch of the career of Dr. Steinmetz. He dwelt especially on the human side of the noted electrical wizard, his simple habits and tastes and his love for companionship.

The speaker praised the tremendous mathematical and scientific prowess of the great electrical engineer, and lauded his texts, which, he said, are monuments to his memory.

R. M. Spurck, of Schenectady, who was a guest at the luncheon, said that he was indeed glad that the speaker brought out the human elements, as Dr. Steinmetz was human and kind, mixed with the boys, and was well regarded by them.

The Engineering Council of Utah was asked, in a motion passed at the meeting, to prepare a set of resolutions in behalf of the luncheon club, in appreciation of the life of Dr. Steinmetz, in addition to the resolutions which it had already prepared on its own account.

Women Urged to Electrify Homes by Hallowe'en Speaker

If Hallowe'en once stood for superstition, the Electric Club of San Diego, Calif., forever shed light on the occasion when it gave its first social affair of the season on Oct. 31, at the San Diego Hotel.

Carl Heilbron, chosen as the speaker of the evening, addressed himself to the women present in his talk on "The Part of Electricity in the Building of San Diego." He related the history of the early struggles of the street railway company, the gas and electric company and the telephone company, and lauded the present workings of those utilities.

Then carrying his message to the home, for which he declared the whole industry existed, he urged the wives of electrical men to make their homes and the homes of the city electrical. Industry, he said, was approaching its saturation point of possible electrification, but the home, he declared, was only from 10 to 15 per cent saturated.

"Not one man in a thousand gives the thought that he does to his business to the comfort and convenience of his home. I'll venture to challenge that not 33 per cent of the homes of electrical men are fully electric homes. It is up to you women," he continued. "You can get it if you want it. Make your home the real electric home that it ought to be and you will make your home a comfortable and convenient home."

Fay Smalley, chairman of the program committee and in charge of the

evening's program, also introduced E. J. Burns, assistant general manager of the street railway company. Mr. Burns made a prediction that the beach sections of San Diego, through which his company is to run a new rapid transit line, would develop \$5,000,000 in the building of homes and business houses of which the electrical industry should certainly get its share if alive to the possibilities.

Denver Electrical League Holds Hallowe'en Meeting

One hundred and twenty-eight electrical men of Denver, Colo., were guests of the Electrical Cooperative League of that city at the Metropole Hotel party and Hallowe'en dinner staged by that organization recently. The program was arranged by the entertainment committee of the League organization and was one of business and entertainment both. It was declared to be one of the most successful gatherings ever staged by the Denver League organization. O. L. Mackell, chairman of the League, presided.

Drawing of appliances by jobber members in connection with the appliance display of the League's electrical home, was one of the closing features of the party. Among the speakers of

COMING EVENTS

California Industries Exposition—

Exposition Auditorium—San Francisco, Calif.
Nov. 17-Dec. 2, 1923

Commercial Section, Rocky Mountain Division, National Electric Light Association—

Commercial Section Meeting—
Salt Lake City, Utah
Nov. 21-22, 1923

American Society of Mechanical Engineers—

Annual Meeting—New York, N. Y.
Dec. 3-6, 1923

the evening were Clare N. Stannard, first vice-president and general manager of the newly formed Public Service Company of Colorado; John F. Greenawalt, representing the Mountain States Telephone & Telegraph Company; L. A. Barley, chief engineer of the Mountain States Inspection Bureau, who discussed the features of the 1923 Electrical Code of the National Board of Fire Underwriters; J. C. Davidson, manager of the electrical department of the Hendrie & Bolthoff Manufacturing & Supply Company; Harry Randall, district manager of the General Electric Company; A. C. Cornell, manager of the Western Electric Company; T. D. Harris, builder of the home to be used by the Electrical Cooperative League for exhibition purposes; S. W. Bishop, executive manager of the Denver League, and Frank J. McEniry, field representative.

A two-day convention of the Commercial Section of the Rocky Mountain Division of the National Electric Light Association will be held in Salt Lake City, Utah, Nov. 21-22. Prominent executives from central station companies throughout the country have been asked to attend the meetings.

Electric Wiring Standards Are Discussed at Meetings

The Rocky Mountain division of the National Electric Light Association has just completed the experiment of a new committee activity occasioned by the publication of the new electrical code by the National Board of Fire Underwriters and the necessity of higher wiring standards in that geographic division, according to a recent report of D. C. McClure, division president.

Not that electric wiring installations are not up to the standard of other sections of the country in the states of Wyoming, Colorado, and New Mexico, but rather to emphasize the necessity of maximum rather than minimum standards, as prescribed by the code, is understood as being the occasion for tying-in the work of the divisional wiring committee with that of the fire underwriters in that section.

The activity thus far has taken the form of special meetings at Cheyenne, Wyo., and Greeley, Colo., attended by all of the local electrical men in those cities, the electrical inspectors, central station representatives, architects, and city officials. In company with L. A. Barley, chief engineer of the Mountain States Inspection Bureau, S. W. Bishop, manager of the Electrical Cooperative League of Denver and chairman of the division wiring committee, attended and addressed these meetings.

The work of the national organization, especially the wiring committee of which Mr. Bishop is a member, and its relationship to some of the improvements effected in the new code were explained, as was the necessity of providing complete and efficient wiring installations looking towards the complete satisfaction of the customer and consumer.

Portland Engineers Hold Joint Evening Discussion

The recent opening meeting of the Portland, Ore., sections of the American Institute of Electrical Engineers and the National Electric Light Association was a decided success. The two societies met in joint session as is the custom in Portland, thereby insuring a big crowd. The attendance was about eighty.

Prof. E. E. F. Creighton, research engineer of the General Electric Company, gave a most interesting talk on "Lighting and Continuity of Service." Mr. Creighton is well qualified to talk on this subject, having spent many years in the laboratories of the largest electrical manufacturers in studying high voltage phenomena.

Francis H. Murphy, illuminating engineer with the Portland Railway Light & Power Company and an active member in both societies, gave a short talk on the "Relationship of the Local Sections of the American Institute of Electrical Engineers and National Electric Light Association to Their Parent Organizations, and to the Oregon Technical Council."

The Sacramento Valley Electrical Society held a special get-together meeting at the Hotel Land, Sacramento, Calif., on Nov. 14. A large group of electrical men from the Sacramento Valley and outside cities was present.

Manufacturer, Dealer and Jobber Activities

The Denver Sewing Machine Company, 1521 Champa Street, is the latest entry in the appliance selling field in Denver, Solo. In addition to handling the White sewing machine the company represents the Maytag Washer Company. A line of heating appliances and lamps is also carried.

The P. A. Geier Company, Cleveland, Ohio, has recently appointed N. A. Barnell assistant sales manager of the company. Mr. Barnell is, in point of service, the third oldest member of the Geier sales organization.

W. A. Jones Foundry & Machine Company, Chicago, Ill., has recently published Catalogs No. 27 and L-28. The former catalog gives information concerning cast iron pulleys, "Lemley" ball bearing pulleys, and ring oiling loose pulleys. Steel, wood and paper pulleys are also listed. Friction clutches are the subject of the second catalog. Copies of the catalogs may be secured by addressing the company.

The F. W. Wakefield Brass Company of Vermillion, Ohio, recently prepared for distribution a small leaflet entitled, "Electric Daylight in Your Kitchen." The leaflet is suitable for distribution to consumers. Copies may be secured from the manufacturer of the equipment.

The Benjamin Electric Manufacturing Company, Chicago, Ill., has recently prepared Bulletin No. 52, which is devoted to industrial lighting equipment. In addition to the general catalog material, the 80-page booklet contains an extensive series of illustrations showing correct illumination in industrial plants of all types. There is also a section devoted to the philosophy of good lighting as an industrial necessity, an essay on the requirements of good illumination, a discussion of the important points to consider, the use of charts and a demonstration of making the more simple calculations for correct industrial illumination.

The Fulton Iron Works, St. Louis, Mo., has recently published Catalog No. 805. The book is devoted to a description of the Fulton-Diesel oil engine. The catalog contains a number of illustrations showing the engine installed on various projects.

The National Tube Company, Pittsburgh, Pa., has recently published a booklet entitled, "The Seven Wonders of Wrought Pipe." The booklet contains the records of seven incidents in which pipe was subjected to extreme conditions and stood up under the strain.

The Edwin F. Guth Company, St. Louis, Mo., has recently put on the market a new standardized fixture for lighting homes, hotels, clubs and similar locations. The new fixture is known as "Mazelite" and is equipped with a 12-in. reflector and a bowl 6 1/4 in. in diameter. The bowl is made of extra dense ivory tinted glass and the reflector is finished in oxidized silver with gold high lights. The fixture is designed for close ceiling mounting thus making it adaptable to rooms with low ceilings.

The Duncan Electric Manufacturing Company, of Lafayette, Ind., has recently announced the appointment of two new district sales agents. Walter W. Gaskill, Boston, Mass., has been appointed the district sales agent for the New England territory and A. F. Blecksmith, 534 Bryson Building, Los Angeles, Calif., will act as the district sales agent for the territory comprising California, Nevada and Arizona. E. H. Albrecht, 310 Lewis Building, Portland, Ore., will continue to represent the company in the Washington-Oregon territory. The company is the manufacturer of electric meters and distribution transformers.

The American Time-Switch Company, Cleveland, Ohio, has recently prepared for distribution Folder B, which contains matter giving the uses, description, operation and types of the American time switch clock. The clock is equipped with a spring motor, separate from the timing apparatus of the device, which is powerful enough to turn the switch instantly. The device will turn on and off electric currents at any time that may be determined beforehand.

The Doble Engineering Company, Boston, Mass., has transferred its offices to 110 Brookline Street, Cambridge, Mass., where increased space for all phases of the company's business and close contact between office and factory will be available. F. C. Doble states that interest in live line insulator testing is increasing throughout the country among both operating organizations and insulator manufacturers.

The National X-Ray Reflector Company, Chicago, Ill., has recently developed a new portable flood light, with a center spot beam, which is for use on large display work. The new unit is also suitable for use wherever a portable flood light is needed. There are two sizes of the new unit, the smaller of these using a 200-watt Mazda C lamp. This size can be used for either white or colored lighting. The larger size unit uses a 500-watt Mazda C lamp and is for white lighting only.

The Wagner Electric Corporation, St. Louis, Mo., has recently prepared for distribution Bulletin No. 134. This bulletin is devoted to the description of the new Fynn-Weichsel motor that is being manufactured by that company. This new motor is designed to correct power factor where induction motors are installed in industrial plants. The new motor operates as a slip ring induction motor at synchronous speed and starts as a slip-ring induction motor, having starting torque characteristics such that it will develop 150 per cent torque with a starting current of from 150 to 200 per cent. After the motor attains synchronous speed it becomes a self-excited synchronous-induction motor, the excitation varying automatically with the load. With appropriate windings the motor can be made to operate at unity power factor, or with a definite leading power factor to compensate for lagging current taken by other motors on the same line. The motor will carry 150 per cent load without falling out of step and above this it acts as an ordinary slip-ring induction motor.

The Trumbull Electric Manufacturing Company, Plainville, Conn., has just issued its Bulletin No. 5. This bulletin is of particular interest to the trade and deals with the new motor switches and new entrance switches which the company has just produced. It also shows that the Type A switch is now made in quick make and quick break. The catalog will be furnished as rapidly as possible through jobbers.

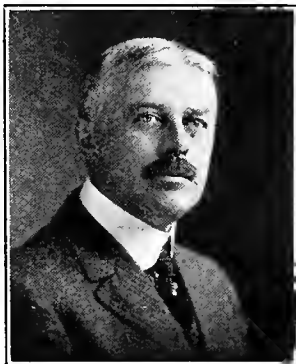
The Reliance Electric & Engineering Company, Cleveland, Ohio, has prepared for free distribution a 51-page booklet entitled "Anti-Friction Bearings in the Steel Mill." The booklet is a reprint of a paper presented before the Association of Iron and Steel Electrical Engineers by A. M. MacCutcheon, chief engineer of the Reliance Electric & Engineering Company. The booklet also contains the discussion that was presented on the paper at the time of its presentation. The paper and discussion deal largely with bearings used in electric motors.



The future executives and engineers of the Westinghouse Electric & Manufacturing Company had a good time at the annual picnic held in the Denver mountain parks recently. The little fellow on the left is crying for his "Cosy-Glow."

Personals

Clare N. Stannard, who has just been elected vice-president and general manager of the newly formed Public Service Company of Colorado, is well known to the electrical fraternity of the entire country. He entered the public utility business when he was 21 years old and,



CLARE N. STANNARD

after eight years with various electric and street railway companies, joined the force of the Denver Gas and Electric Light Company. After 24 years' service, during which time he held many different positions in the cashier's and commercial departments, he was made vice-president and general manager. Upon the formation of the Public Service Company of Colorado, by the consolidation of the Denver Gas and Electric Light Company, the Western Light & Power Company and the Lakeside Construction Company, he was elected vice-president and general manager. Under his administration the Denver Gas and Electric Light Company has made notable strides in development and has established itself in the goodwill of the public. Mr. Standard is an active member of the Denver Civic Club, the Rotary Club and other progressive civic and commercial associations.

C. L. Clevenger, for several years with the California Oregon Power Company at Grants Pass, Ore., has recently opened a retail electrical establishment in that city.

Bert L. Perry, formerly engaged in the electrical business in Edmonton, Alberta, has moved to Los Angeles, Calif., and has been made assistant general manager of Gans Brothers Electrical Company.

L. J. Smith, of the Packard Electric Company, Warren, Ohio, and whose headquarters are at 451 East Third Street, Los Angeles, Calif., was a recent visitor to San Francisco on business for his firm.

A. R. Miller, Portland, Ore., district manager for the National Carbon Company, Inc., San Francisco, Calif., has resigned from that company to enter the radio field.

L. B. Robinson, transformer specialist for the General Electric Company, Schenectady, N. Y., is in Seattle, Wash., on business for his company.

Tom H. Rhodes, formerly salesman with the Western Electric Company, Los Angeles, Calif., is now in the real estate business with the Frank Meline Company.

E. L. Booth has recently joined the Los Angeles, Calif., office of the Western Electric Company as specialty appliance salesman, in the supply division. Prior to coming to Los Angeles Mr. Booth was for thirteen years with the Edison Electric Illuminating Company of Boston. His service with that company was principally in the sales department and also as district manager.

Carl J. Andrae, Julius Andrae & Sons, Milwaukee, Wis., and Fred Schmidt, of the same company, were recent visitors to Los Angeles, passing through the latter city on their way back to Milwaukee from the American Legion convention in San Francisco.

A. K. Baylor and G. E. Emons, of the General Electric Company, were recent visitors to Los Angeles. Mr. Emons is vice-president in charge of manufacturing at Schenectady. Mr. Baylor is a member of the board of directors of the Edison Electric Appliance Company and of the Electric Vacuum Cleaner Company. During their stay in Los Angeles they attended a meeting of the Los Angeles Electric Club.

Tracy Simpson, of the Federal Electric Company, San Francisco, Calif., has resigned from that company to become western district manager of the Bonded Floors Company. His territory will embrace all that section of the country from Denver, Colo., to the Pacific Coast.

D. C. McClure, electrical superintendent, and F. F. McCammon, power sales engineer, both of the Public Service Company of Colorado, have been appointed as members of the Rocky Mountain Committee on Public Utility Information, of which W. C. Sterne is chairman. Mr. McCammon, as representing the committee, addressed the University Club of Canon City, Colo., Oct. 17, on "The Economic Phases of the Electric Power Industry."

J. A. Kahn and R. C. Nash of the Capital Electric Company, Salt Lake City, Utah, after short business trips to Idaho and Montana, respectively, have returned to Salt Lake City.

S. Rosenfield of the United Electric Supply Company, Salt Lake City, Utah, is in Denver on a business trip.

A. L. Maul, assistant auditor in the New York office of the supervisor of incandescent lamps of General Electric Company, was a visitor to Salt Lake City, Oct. 8-10.

J. E. Crilly, Pacific district line material manager of the Western Electric Company, San Francisco, Calif., was a recent Los Angeles visitor, going over the local field with the representatives in that section.

H. W. Young, president, Delta-Star Electric Company, Chicago, Ill., accompanied by Mrs. Young, sailed Nov. 3 on the Majestic for Paris, where he will present a paper on American High Tension Outdoor Substation Practice before the International High Tension Congress. Following this, several foreign cities will be visited to investigate the latest European high tension practice.

C. G. A. Baker, of Baker-Joslyn Company, San Francisco, Calif., with Mrs. Baker is on an extended trip east. During his absence he will visit the various factories whose equipment his company sells.

James R. McCormack has recently been appointed Los Angeles manager of the Scheeline Manufacturing Company with offices in the Metropolitan Building, Los Angeles, Calif.

Theodore G. Parker, of the Golden State Electric Company, Los Angeles, Calif., was a recent visitor to San Francisco on business for his firm.

P. E. Matteson, formerly president and general manager of the Tidewater Electric Company, New York, is now sales manager for the Inter-Mountain Electric Company, Salt Lake City, Utah.

S. C. Ellis, of the department of mines, Dominion of Canada, is in Denver, Colo., investigating the method of treatment of oil sands and oil shales.

Francis C. Shenehon, of the H. M. Byllesby Engineering Corporation, is on a visit to the Coast to inspect various projects of the company. During his trip he will devote special attention to the El Dorado project on the American River.

Emmet N. Britton, assistant to the general manager, San Joaquin Light & Power Company, Fresno, Calif., has resigned from that position to join the King-Knight Company, Balboa Building, San Francisco, Calif. In his new work Mr. Britton will take an active part in the operations of his firm which does a general manufacturers' agency and engineering business. Mr. Britton was educated at University of California, class of 1914, and immediately after leaving college went to work for the Pacific Gas and Electric Company, rising to the position of superintendent of gas distribution. At the outbreak of the war he volunteered and served as first lieutenant of the 363rd Regiment



EMMET N. BRITTON

in the First Battalion. On his return from the war he became managing editor of the Journal of Electricity which position he held until becoming connected with the San Joaquin Light & Power Company. Mr. Britton is the son of the late John A. Britton, formerly general manager of the Pacific Gas and Electric Company and one of the outstanding figures of the electrical industry, not only of the West but of the entire country.

Oliver E. Sholders, who has recently been appointed sales engineer in charge of domestic applications for the Pacific Gas and Electric Company, San Francisco, Calif., was born near Kansas City, Mo., April 11, 1883. He was educated in the schools of Missouri and later entered the wholesale dry goods business in Kansas City. Some time later he resigned from this business and became divisional sales manager for a large New York manufacturer of food products, in charge of a southern division. In 1907, prompted by a desire to come to California, he resigned and en-



OLIVER E. SHOLDERS

tered the employ of a manufacturer of confectioners' specialties, remaining in this work some time after being made division sales manager for six western states. He joined the sales force of the Pacific Gas and Electric Company in 1921 and has held various positions in the sales and new business departments. Mr. Sholders has a wide acquaintance among the electrical trade and is well equipped by experience for his new work.

H. M. Bylesby and **T. J. McGrath**, of H. M. Bylesby & Company, Chicago, Ill., were recently in San Francisco. They visited the various properties of the company on the Pacific Coast and spent some time in contemplation of operations.

F. E. Weymouth, chief engineer for the United States Reclamation Service, has been holding conferences in Salt Lake City, Utah, with **William M. Green**, engineer of the service in charge of reclamation investigation in Utah, with the object of making definite recommendations in regard to reclamation projects in Salt Lake, Davis, Tooele, Utah and Weber Counties. It is understood that Mr. Weymouth will prepare several plans involving a certain scope. These will probably be submitted, and the extent to which the reclamation work will be carried out will depend upon the size of the appropriation Congress may make.

Robert Miller, **W. A. Moser**, **A. J. Calloway**, **P. M. Parry** and **G. R. Randall** are the Salt Lake City, Utah, representatives of the Joint Committee for Business Development. **M. L. Cummings**, of the Utah Power & Light Company, is the publicity correspondent for that section.

Dr. Walter E. Boveri, director of Brown-Boveri & Company, Switzerland, is on the Pacific Coast in the interests of his firm. It is understood that his company contemplates the opening of a factory in this territory.

Robert M. Spurck, designing engineer of the oil circuit breaker department of the General Electric Company, Schenectady, N. Y., addressed the Denver, Colo., section of the A.I.E.E. at the Adams Hotel on Nov. 2. Mr. Spurck spoke on "Design and Characteristics of Oil Circuit Breakers" and his talk was splendidly illustrated with special lantern slides.

C. G. DuBois of New York, president, **A. J. Wallace**, Pacific district manager, **F. B. Gleason**, general sales manager, New York, and **P. M. Rainey**, radio sales manager, of the Western Electric Company, were recent Los Angeles visitors and while in that city were entertained at a banquet in their honor at the Biltmore Hotel given by the Western Electric Company employees of Los Angeles. A very interesting program was arranged for them which included talks by those present, together with a musical program arranged by **J. G. Loomer** of that company.

Ralph J. Cordiner, of The Edison Electric Appliance Company, Portland, Ore., is spending several weeks in Spokane in connection with sales of Hotpoint-Hughes electric ranges in that territory. Mr. Cordiner states that six of the leading power companies in the northwest are now conducting range campaigns and that the sales already made indicate that a great success is to be attained. This is the first time that such campaigns have been carried out in the autumn months, and the results confirm Mr. Cordiner's conviction that the market for electric ranges is one that is open throughout the year, and merely needs stimulation to be productive.

A. V. Kipp, traffic manager of the Salt Lake & Utah Railroad, has been appointed assistant general freight agent of the Oregon Short Line. Mr. Kipp has been traffic manager of the Salt Lake & Utah Railroad since March 1, 1921. For six months prior he served as general freight and passenger agent for the road. He has been constantly connected with railroads of the West since he entered the service of the Union Pacific at Omaha in 1902 as telegraph operator. He consecutively became chief operator at the Omaha office, traffic agent for shipments in Wyoming, traveling freight agent with headquarters in Denver, and contracting freight agent for Denver. During the war he had charge of the traffic department of the United States food administration for Colorado. Mr. Kipp's successor has not yet been named.

C. D. Wood, formerly division foreman of the Pocatello Division, Idaho Power Company, is now division superintendent of the Siskiyou Division, California Oregon Power Company, Yreka, Calif. Mr. Wood replaces **O. C. Failing** who goes to the head office of the company at Medford, Ore., as chief meter engineer.

R. C. W. Libbey, of the Simplex Electric Heating Company, Cambridge, Mass., has returned to his San Francisco headquarters after several weeks spent in an intensive sales campaign in southern California.

G. R. Randall, of the Salt Lake Electric Supply Company, Salt Lake City, Utah, has recently returned from a business trip to Pocatello, Ida.

Frank Pollard of the miniature and automobile lamp department of the Edison Lamp Works, Harrison, N. J., is in Salt Lake City to assist the automobile interests in the sale of lamps.

A. B. Oday, illuminating engineer of the Edison Lamp Works, Harrison, N. J., and **H. G. Meredith**, lighting engineer of the Ivanhoe Regent Metal Works, Cleveland, Ohio, are spending several weeks in Salt Lake City for the purpose of assisting in the work of promoting better lighting among the merchants of Salt Lake City and Utah. They plan, in connection with their work, to speak and give demonstrations before various gatherings of engineers, electragists, architects, merchants, clubs, etc.

H. A. Lane of the Joint Committee for Business Development will be in attendance at the N.E.L.A. Convention to be held in Salt Lake City, Utah, Nov. 21-22.

E. A. Evans, Westinghouse Lamp Company, has returned to Salt Lake City from a ten-day trip to the coast. He attended a meeting of the Pacific Coast division representatives of the Westinghouse Lamp Company held in San Francisco, visited the electrical jobbers in Portland, Ore., and also the Idaho territory where he found the electrical dealers most optimistic and crops very good.

T. E. Reger, of the Frank Wolcott Manufacturing Company, New Haven, Conn., is making an extensive trip to all the major Pacific Coast cities. He has recently been in San Francisco and will later proceed to the Northwest.

Harry J. Martin, Seattle manager of the National Carbon Company, Inc., is the new president of the Electric Club of Seattle, succeeding **W. E. Jones**. Mr. Martin has been identified with the National Carbon Company for the past ten years, three years of this time in Seattle, the remainder in San Francisco



HARRY J. MARTIN

and Salt Lake City. He has been a member of the Electric Club of Seattle since its inception and has always been an active worker. During the recent Electrical Home exposition, as chairman of the reception committee, he was constantly in attendance. Mr. Martin was born in Illinois but came to the coast several years ago. He has been in the electrical business ever since and has an extensive acquaintance in electrical trade circles.

Trade Outlook

San Francisco

Sales continue to show a satisfactory increase over last year and future prospects are good. Building construction continues apparently without let-up and labor is well employed.

Fruit and rice shipments have been heavy releasing considerable capital for other purposes. Banks have generous cash reserves and country banks have reduced their demands on the Federal Reserve for assistance.

Export business continues rather quiet and no immediate improvement is expected. Extensive construction of electric and gas utilities is under way, occasioned by community growth and the increased demand for these services.

Manufacturing continues active with many factories striving to catch up with unfilled orders. This is particularly true of electrical heating equipment companies.

Appliance business is good and some jobbers report difficulty in securing stock.

Los Angeles

Manufacturers report excellent business prevailing with no prospects of diminishing. Wholesale business is also keeping up well particularly in the supply lines, due to the enormous building program which is under way in southern California. The wholesale business as relates to the oil industry has not been improved any during the past few weeks and prospects of its increasing prior to the first of the year are not bright.

Manufacturers of electrical water heaters report a slowing up in the demand for this type of apparatus. Electrical retailers report an increase of business with even better prospects as the Christmas season approaches. Radio sales are picking up slowly.

Building permits for October totaled \$20,541,872.

No let-up in building progress is indicated in announcements made this week for new structures for the near future in Los Angeles.

An increase of \$60,622.17 was shown in October post office receipts which totaled \$600,759.94, according to Postmaster P. P. O'Brien. The report of Collector of Customs Lewis H. Schwaebe showed that collections for the month reached \$439,695.69, the highest in the history of this Port.

Portland

Exports valued at \$7,931,817 cleared from Portland during October, this being the largest in the past three years. Shipments were principally lumber, flour, wheat, dried and fresh fruits.

The activity of the lumber mills is being maintained at its high level of better than 20 per cent above normal. Prices remain firm. Fifty-six per cent of all new business taken during the week ending Oct. 27 was for future water delivery. California is by far the largest buyer.

Residences are building in all parts of

the city. During October a total of 1,626 permits were issued, valued at \$1,950,435, which is 12 per cent above the same month a year ago.

On Oct. 29 the electrical workers of the Northwestern Electric Company left their work in an attempt to enforce their demands for higher wages. This affected 120 men directly, and will if continued, seriously handicap the power company. The situation is being closely watched by the Portland Railway, Light & Power Company whose agreement with the unions expired on Oct. 31.

Salt Lake City

Movement of the great agricultural crops of Utah and Idaho to market is now well under way. Prices for these crops are good, and the new capital received in payment for these crops will improve the financial condition of the intermountain country. Never has there been a better grain crop in Utah and Idaho than this year, nor has the crop of sugar beets been more promising nor the general price condition better.

The last quarterly report of the Utah state bank commissioner, dated Oct. 10, shows continued improvement in financial conditions.

Building activity in Salt Lake City during October was nearly double that of the corresponding month of last year.

Electrical dealers are planning to make the coming Christmas more than ever an electrical one, and there is every indication that holiday trade will be very good.

With the industrial plants and mines operating practically at capacity and the agricultural people receiving bettered incomes the situation is good. There is, of course, room for improvement in business generally, but more and more of that improvement is continually in evidence.

Spokane

General conditions continue favorable. Good weather continues and many lumber camps are still in operation. Practically all of the woodworking establishments in Spokane are operating at a high level of production. A recovery from the slight slump in August and September is evident. One large sash and door plant is operating on two shifts.

The Sperry Flour Company reports an output of 51,378 bbl. of flour for October, this being the largest ever attained by their Spokane plant.

Wage reductions have gone into effect at Butte. Activity in the Coeur d'Alene district is well maintained, the resumption of work at the Gold Hunter Mine near Mullan, shut down since the fall of 1919, offsetting the recent shutdown of the Callahan Zinc Lead properties. Activity in eastern Oregon fields is increasing with the Sumpter Smelter in actual operation. Southern Idaho sees improvement through resumption of production by two free milling gold properties. Increased output of lead, zinc and silver is looked for from

southern British Columbia on account of the large mill of the Consolidated Mining and Smelting Company at Kimberley, coming into production during September and October.

Labor situation is reported good. Some shortage of skilled planing mill workers is felt locally.

In practically every industrial plant in Spokane, a marked increase in power consumption is reported for 1923, as compared with last year, thus indicating the general improvement in business.

Denver

Business conditions are a little slower although regarded optimistically. Bankers are looking for improvement in November and December because a large amount of money is to be paid out at that time to beet growers and because of the holiday buying season.

Clearings of Denver banks for October totaled \$156,712,166, a decline of \$14,000,755 from the total for October last year. However, this year's clearings, including September, have averaged 11 per cent above last year.

Building, as usual, is active, Denver building permits for October, 1923, totaling \$2,386,600, an increase of \$902,100 over October, 1922. A total of 630 permits was issued last month.

Disagreeable weather and a labor scarcity in parts of the state have delayed harvesting, especially in the corn and beet belts in the eastern and southern parts of Colorado. Employment in the southern part of Colorado in the vicinity of the coal mining fields appears to be well balanced.

Local electrical jobbers report an active trend in appliances and pole line hardware. The general trend appears steady.

Seattle

Electric jobbing firms in Seattle, generally speaking, report excellent business. Sales volume is heavy, a major portion of buying being done by central stations, telephone companies, railroads and lumber manufacturing concerns.

Household appliances are moving rapidly, this movement involving electric ranges, washing machines and smaller domestic equipment. The lamp season, at hand, likewise presages increased sales along this line.

Prices on standard materials are holding, the only decreases noted being on certain specialties.

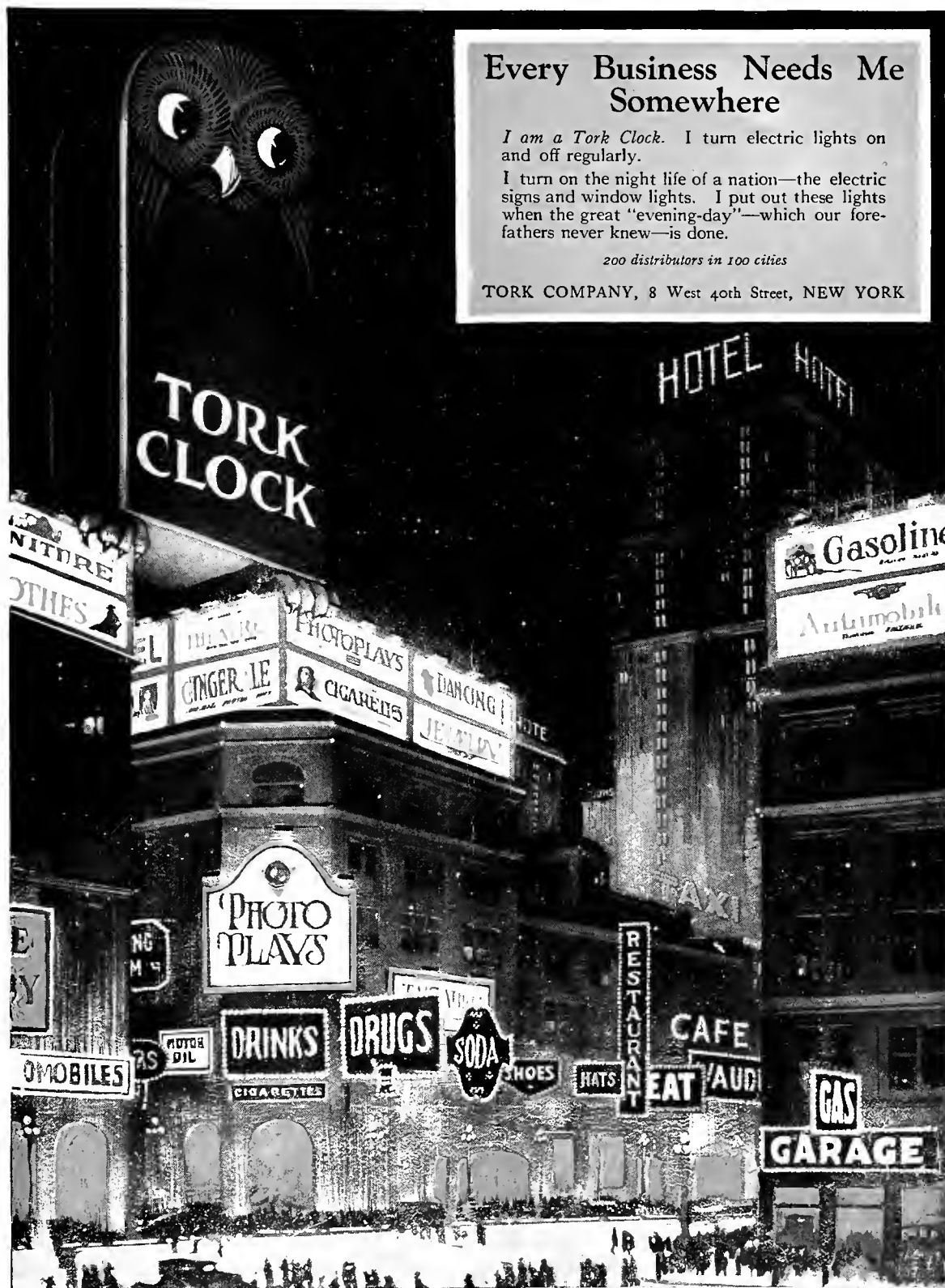
More than twenty million dollars' worth of building permits have been issued thus far in Seattle this year, this amount exceeding by one million dollars the total valuation for all of last year.

Mills reporting to the West Coast Lumbermen's Association for the week ending Nov. 3, manufactured 109,354,044 ft. of lumber and production for reporting mills was 24 per cent above normal. New business was 24 per cent below production. Fifty-two per cent of all new business taken during the week was for future water delivery. New business by rail amounted to 1,113 cars.

Local retail stores and establishments report Christmas buying has started off briskly with every indication that this season's business will set a high water mark for holiday trade.

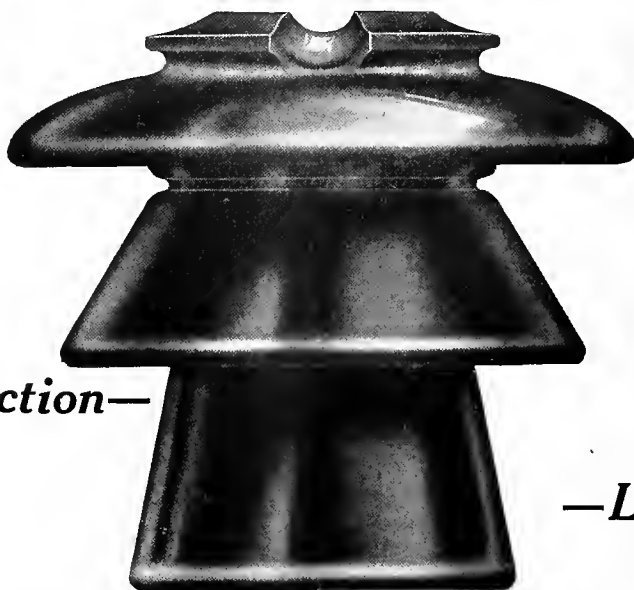
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San Francisco



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ROBERT SIBLEY, Consulting Editor
CLOTILDE GRUNSKY, Contributing Editor

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Reprints

JUST a few words about reprints. Many authors of contributed articles are aware of the value of reprints for circularization among personal friends and others interested. It is a useful and effective method of taking advantage of the wide circulation given through publication in the Journal of Electricity. They may be filed in personal memoranda, thus avoiding the necessity of mutilating the copy of the Journal of Electricity which would spoil it for binding with other issues for future reference.

We are glad to undertake the work of making reprints for our friends, and would like to direct their attention to the mechanics of the process, in order that they may obtain their reprints as cheaply as possible. The time to order reprints is before the issue in which the material to be reprinted goes to press. Thirty days before is better than two weeks, for this reason: our paper is printed in a number of sections, or "forms," ranging in size from 8 to 16 pages. The first forms go to press two weeks at least before publication date. The reprints should preferably be made at the same time the form in which the article appears is run off by the printer. This saves an appreciable sum of money in the cost. When notification of a desire for reprints reaches us after the form has gone to press extra labor is entailed in preparing the matter to be reprinted and sending it on another journey to the printer. When notification reaches us after the form has been returned to the composing room, broken up, and the type matter re-melted for future use, the entire article must be re-set, which adds greatly to the cost.

A little foresight in this regard will save much time and considerable money. Cut these few remarks out and place them in some conspicuous place for future reference. It will pay you.

They Say That Women Like to Talk

Quite true. They do.

When they talk, they sell,—for the retail dealer who is keen enough to use them.

For instance.

Every woman likes to save steps around the house. She likes to have things where she can get at them. She doesn't want to climb chairs or walk down cellar steps in the dark.

Mr. Wise Dealer knows this—and remembers it every time a woman enters his store.

He never misses a chance to tell her about the Bryant 651 Appliance Switch Plug. With it she can control her iron or percolator and avoid fussing with the lamp socket.

He shows her Bryant Wall Brackets, inexpensive and durable, and the Bryant Tumbler Switch. With these she can put a light where she wants it and control it easily and quickly.

The dealer talks once. The lady talks many times.

Anyone can afford a wiring device. Most people need one or two and don't know it.

They do know it when the lady gets through talking.

And the dealer gets the profit.



No. 651
Appliance
Switch Plug



No. 2951
Single Pole Tumbler
Switch with Porcelain Cup



No. 674
Wall Bracket



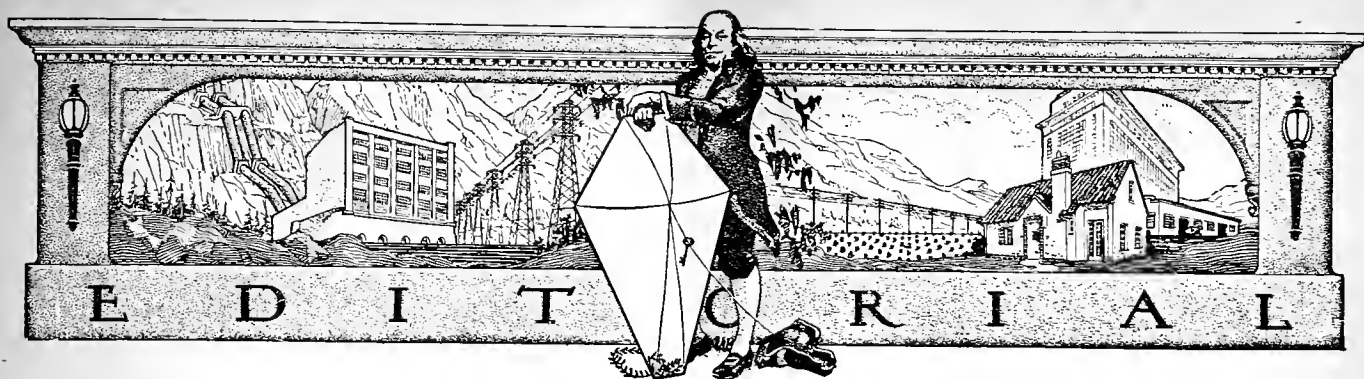
"A Superior Wiring Device for every Electrical Need"

THE BRYANT ELECTRIC COMPANY
1421 STATE ST., BRIDGEPORT, CONN.

NEW YORK
342 Madison Ave.

CHICAGO
844 West Adams St.

SAN FRANCISCO
149 New Montgomery St.



A Fair Return and a Just Profit

ONE way to define business, is to call it a transaction or series of transactions between two or more parties by which an interchange of commodities or their equivalent is effected on such a basis as to be mutually profitable. Obviously, the converse is true, that if a business does not make a profitable return to one of the parties, it is no longer a business from the standpoint of that party.

HOW much is money worth? Uncle Sam, in offering the greatest security in the world today says 4 per cent per annum. The savings banks pay their depositors the same rate, while commercial loans made by banks to their most approved customers charge 6 per cent or more for the accommodation, while gilt-edged industrial bonds are returning 6 per cent and upward to those who invest their surplus capital in that manner.

THE business man borrows money at 6 per cent, adds his brain and brawn, and after paying either his bank or bondholders for the use of their money, has enough left to return to his stockholder six or more per cent as well. That is, if he is a business man, and is conducting his business on business principles. These figures are commonly accepted as a minimum in the achievement of business success.

READ what Mr. F. V. Mitchell says on the subject of contractor-dealer profits in this issue. You will see what he found in his analysis of the business of sixteen electrical contractor-dealers. You will see that, for a volume of business aggregating over \$400,000 the net profit was but $2\frac{3}{4}$ per cent.

True, this is not the return on the capital invested, but even so, there was practically nothing left to the owners of the business as a result of their hard work. They were a little older, a little grayer, perhaps, but certainly no richer.

ONE of the contractor-dealers in question had made 11 per cent, while others as little as 1 per cent. This shows that it can be done, but why should not all make their business profitable? There are many reasons, among them being the lack of adequate accounting systems, and in some cases, the lack of any accounting system at all worthy of the name.

THE accounting system is the backbone, the foundation, upon which good business, real business is built. It tells the story of mistakes so that they may be corrected; it is the basis for future estimates, by which the buyer can get what he should have, and the seller make a profit; it is the means of correcting injudicious buying; it is the X-ray by which the inside of business practice may be studied and analyzed.

MR. OVERHEAD does not seem to have the honor of the acquaintance of many contractor-dealers, but that does not mean that he does not attend all functions given by them, whether he is invited or not. He, of all guests, is omnipresent, and he exacts his toll at all times as the results indicated by Mr. Mitchell show. We can recommend a thoughtful reading of Mr. Mitchell's article in this issue, and perhaps Mr. Overhead may become less of a liability in the future than he has in the past.

The Value of National Cooperation

THE recent meeting of the commercial section of the National Electric Light Association in Salt Lake City and the meeting in Denver earlier in the year should have demonstrated the advisability and importance of holding at least one such session each year in a western city. The interest shown by the representative gathering is evidence of the wisdom of arranging a common meeting ground for the interchange of ideas and the discussion of problems of local and national concern. Westerners have had a tendency in the past to assume an attitude of self-satisfaction whenever any subject was mentioned, including their climate. Cooperation with the East, in most cases, has been lacking. Nation-wide co-operative enterprises have been almost entirely shunned, the westerner feeling that his problems were exclusive unto himself. It is gratifying to note the change in attitude which has occurred, and it is to be hoped that the example set at the Denver and Salt Lake meetings will be followed—nay, bettered.

The Envable Record of the Federal Power Commission

IN its third annual report, just submitted, the Federal Power Commission states that it has dealt during the past three years with applications involving a total of 21,500,000 hp. Further, it has issued permits and licenses for a total of 7,500,000 hp. and has supervised the construction of 2,400,000 hp. in hydroelectric plants, or approximately one-fourth of the total installed during the 20 years prior to the establishment of the Commission. This is fair proof of the satisfactory character of the legislation which created the Commission and the substantial results which have been accomplished in its administration.

This record has been achieved in the face of many obstacles. Lack of personnel, small appropriations of funds, jealousies of departments which have felt that the Commission has usurped their powers, and other difficulties have had to be surmounted. It has only been by the harmonizing of the collateral interests of the departments which formerly administered the water powers of the nation and by utilizing the existing personnel to the greatest possible advantage that the Commission has been able to establish a record that constitutes one of the best examples of government co-ordination.

In its report the Commission suggests two amendments to the Federal Water Power Act that would considerably increase its efficiency. The first deals with the administration of permits issued by various and sundry departments before the creation of the Commission and which are still under the jurisdiction of those departments. It is manifest that such a division of responsibilities and duplication of administration is undesirable. It is the desire that the Act be amended so as to place the administration of all projects, whether authorized under the present law or otherwise, in the Federal Power Commission.

The second proposed amendment deals with investigation of water powers. It was the evident purpose of Congress in creating the Commission to place upon it responsibility for all water-power activities of the Government in order to provide a common policy in investigation and administration, to avoid duplication and to secure a co-ordinated plan for the utilization of water powers. This has been accomplished with one exception. Certain departments are still carrying on independent investigations involving expenditures several times greater than those authorized by the Commission. Both for the purpose of co-ordinating independent investigative work respecting water powers into one general program and for utilizing the appropriations made by Congress for such works to the best possible advantage, the act should be amended to place all investigative as well as administrative functions in the hands of the Commission.

The value of the work of the Commission to the central station industry of the country is apparent. It behooves this industry to see that the national organizations which perform its legislative functions are directed to cooperate with the Commission in securing these amendments to the Federal Water Power Act.

Experience Is a Good Teacher But the Course of Study Seems Long

THERE have been many examples in the United States of the futility of government ownership and operation of public utilities. The costly experiment with the railroads during the late war, the experience of North Dakota with its Non-Partisan League, and sundry examples of municipal meddling with private business have had little or no effect on the adherents of the semi-socialistic plan for public ownership of everything from electric utilities to boot-black stands.

England now presents another such example, according to one of our British contemporaries. Wireless communication was placed in the hands of the British Post Office department in 1912. In ten years there was little or no growth. Last year the Dominions were allowed to enter into agreements with private corporations for the erection of powerful radio stations. Since that time the growth has been rapid in India, South Africa and Australia. However, the Post Office department has refused to give up its monopoly of overseas radio communication in England and progress ceases. There are few high-powered stations and development is described as being "30 years behind the times."

Commenting on the situation, our contemporary says:

"The right course to adopt in the best interests of the nation and the Empire, is to follow the common-sense example of the Dominions and entrust the service entirely to the hands of competent private enterprise. Then we shall be assured of an efficient service with the least further loss of time, and we shall be spared the burden of financial loss as has

been experienced in connection with the existing Post Office stations at home and in Egypt."

There is a proverb to the effect that "experience is the best teacher." True enough, if we can learn from the experience of others, and not duplicate their costly mistakes.

An Opportunity for Someone To Say "I Told You So"

A leading firm in one of our western cities, which has, for nearly 40 years, done an excellent business in general household supplies, has decided to discontinue all of its departments except the one merchandising electric labor-saving devices. The sales effort, and the advertising which were formerly spread over several departments, will now be concentrated on this one. The good-will which the firm has accumulated during its many years of successful merchandising, will now redound to this one department.

This move is particularly significant to the electrical industry. Here is a firm of long standing in the community, which, by its actions, indicates that the commercial possibilities of electric labor-saving appliances are such as to overrule all other lines in which it formerly dealt. Is this not proof of the contention of those progressive men in the industry who have held that electric appliances will be distributed by the broadest channels? There is a saying that straws indicate the way the wind blows. It would seem that here is a significant straw.

The Credit Man and the Contractor-Dealer

THERE are a number of stages in the successful consummation of a sale, not the least of which is the collection of the money. One might even propound a conundrum: When is a sale not a sale? When the bill isn't paid.

The payment of the bill discloses a number of interesting things about a sale. It shows that the purchaser is adequately financing his operations, that the salesman appreciates the vital factor of payment for the goods he sells and therefore is not wasting his time over doubtful accounts, that the credit man of the seller knows his business, and that the affairs of his employer also prosper.

Many people seem to think that the function of a credit man is purely negative. He is regarded as a "NO" man, rather than a "yes" man. Mr. Albert Elliot, in this issue, tells what a credit man really is. He is the friend, rather than the enemy, of the intelligent salesman, and, in most cases, he is a better friend to the doubtful credit risk in refusing accommodation, than he would be if he granted it freely.

Of the many causes of business failure, injudicious granting of credit is the most fruitful. It hurts the grantee no less than the grantor. For the former, it imposes a load beyond his capacity, for the latter it means an altogether needless loss, and if it becomes chronic, then there comes the sheriff and the bankruptcy court.

Credit is the basis of all business. When used judiciously it is the very lifeblood of the industrial system. Make friends with the credit man. When he turns you down, find out why and then correct your faults, rather than blame him for your own shortcomings.

The Fable of the Three Fuses

CRITICISM, unless it is constructive, is of little value. We offer the following facts, minus the criticisms which the incensed housewife made when she called the incident to our attention, hoping that some good may result. In operating her electric iron, this housewife blew a fuse. When she investigated, she found that cartridge-type fuses were required and that the plug-type which she had on hand were of no use. She repaired to the shop of the neighborhood electrical contractor-dealer. The proprietor was uncertain as to whether or not he had any fuses of the required type but a search of many minutes through several boxes of discarded material brought to light two of the fuses desired, for which he asked 20 cents each. It so happened that the housewife required three fuses so the deal was off insofar as this dealer was concerned. Close by was an up-to-date hardware store. Inquiry there resulted in the discovery of a large basket of cartridge-type fuses, priced at 10 cents each. The housewife secured the desired three and went home to finish her ironing. At the close of a tale such as this *Æsop* would draw a moral, although the lesson is so obvious that we feel that none is required.

"Multiply by 11"—an Opportunity for More Sales

THE progressive electrical contractor-dealer on the first of January, reviews the results of the past year, and, considering the possibilities of the future, gives thought to the sales volume which he hopes to make in the next twelve months. The establishment of his quota is based on such things as local conditions, prices, the size of his force and the community in which he does business, advertising and the degree of electrical saturation. This last item varies greatly in the individual home but nearly always the use of electrical appliances is not so extensive that sales possibilities are entirely absent. Changes in types of appliances, new devices for home comfort and improvements in illumination offer continuous opportunity for sales development. Particularly is this true of illumination fixtures and glassware. The Illuminating Glassware Guild has found by survey that every wired home offers the possible sale of 11 pieces of glassware for electric fixtures. Dealers will do well to consider this fact and then determine the number of wired homes in their territory and compute the glassware sales which they ought to make. Not only do these sales show a profit in themselves but they also give a dealer an entrée which facilitates the sale of other electrical devices as well as of additional wiring jobs.

CURRENT COMMENT



The action of the Federal Power Commission in deferring action on the Girard permit for a power development at Diamond Creek on the Colorado River until such a time as the Colorado River compact is ratified by Arizona or until some other agreement for the development of the river is reached by the seven states interested has caused the Salt Lake Tribune to review the entire situation in its editorial columns. In an editorial of recent date, this paper states:

Reaction to Latest Colorado River Decision

Apparently federal executive thought, so far as it is represented by the federal power commission, which is made up of three members of President Coolidge's cabinet, is convinced, as are at least six of the seven states in the Colorado River basin, that some plan for the determination of the rights to use the waters of the Colorado River should be worked out before further development is undertaken. And it is equally as apparent that the federal power commission is willing to lend its recommendation to the plan already evolved, which has obtained the sanction of six of the basin states. This in itself is important, since it is among the first even semi-official indications of how the Washington government views the compact, which must have the approval of Congress before it becomes effective.

The paper also comments to some length upon the attitude of Arizona with reference to the pact. Concerning the possibilities of a special session of the state legislature—the Arizona papers see no hope for such a meeting this year—the Salt Lake paper says:

There is some talk in Arizona of a special session of the legislature. Road problems are suggested, and a state bond issue is under consideration. It is believed that, although the same legislature denied the ratification of the compact last winter, developments since that time warrant the hope that the small unfavorable majority of that time might now be wiped out. If no special session is called, or if a special session finds itself unable to reconsider the ratification of the compact, or if it does reconsider it and stands on its former decision, the problem will, in all probability, be the important state issue before the people of Arizona a year from now.

Utah's position with regard to developments in the lower basin, and this, by the way, is a typical example of the vital need for some treaty or agreement between the states affected, is indicated in the following paragraph:

One other point in the Washington news dispatch is perhaps significant. The correspondent credits the commission with the desire to permit the establishment of no new rights on the lower Colorado at this time. That word "lower" is significant, and important to Utah. The Utah Power & Light Company will soon go before the federal power commission, also with an application for a license, in connection with an important program of power development. But that program affects only the Green River, an important tributary of the Colorado, but flowing entirely within the territory known as the upper part of the basin. Hence it may be considered that the Utah Power & Light Company's application,

when and if it is presented, will not be estopped by the policy adopted by the commission with reference to the Girard filings.

A press announcement to the effect that a \$150,000,000 New York syndicate will apply to the next session of Congress for a permit to proceed with the construction of a dam at Boulder Canyon, brought forth the following comment in the San Francisco Chronicle:

There have been great efforts to induce the states directly interested to agree in the control and use of the waters of the Colorado River. A formal "treaty" has been arranged and ratified by all the interested states except Arizona, and there it has stuck. That plan apparently assumed that the great Boulder Canyon dam would be built by the Government, because it was believed too great for private capital to undertake.

But now comes a syndicate, apparently perfectly responsible, which will propose to Congress to impound the silt in the channel, build the dam and turn it over to the Government, the consideration being the right to operate the plant under Government regulation.

That sounds well. What chance it has with Congress we do not know. But there is a growing feeling that the Colorado must be controlled quickly by somebody, lest in some flood time it change its channel, as has been its custom for ages, and put a lake where the Imperial valley now is. Sooner or later that will be done unless the river is controlled.

There is little doubt in the minds of those who are close to the political situation in Washington that a Water and Power Act will confront the voters of

Agitation for Water Power Act in Washington

that state when they go to the polls in November, 1924. Already the same arguments which filled the columns of the press in California in 1922 are being advanced by the Washington newspapers. Those who participated in the campaign in California will recognize some familiar statements among the following arguments, which are taken from a recent editorial in the Seattle Post-Intelligencer:

Conservation of our greatest natural resource—hydro-electric development—for all of the people of this state for all time is the most important issue that faces the voters in the 1924 campaign.

Enemies of public ownership, who would turn over this great resource for all time to private monopoly, would becloud that issue. They are now seeking to align the farmer vote against the cities.

To conserve our greatest resource for all of the people a new law must be enacted. It must be initiated, since the legislature has shown no responsiveness to the public demand. The framing of that initiative measure, which must be presented to the voters in November, 1924, is today's biggest task. It must be carefully prepared. It will have to be proof against the most ruthless, determined attack that ever has been presented against any initiated measure in Washington's history! Mark that well!

First, let no person in this great state be deluded into thinking this is Seattle's or Tacoma's problem alone. Let no

tricky politician align city against country, or raise a false and deceptive issue.

During the last session of the Washington state legislature there was placed before that body a bill which would levy a tax of 5 per cent of the gross income from all power sold by a municipality outside its corporate limits. The "Reed Bill," as it is known, receives some harsh criticism at the hands of the Seattle Post-Intelligencer in the following editorial:

This is not a publicly-owned utility expansion bill. This is an antipublic ownership bill.

This bill does not propose a friendly opportunity for the sale of a municipally-owned utility's surplus to others who desire its cheap rates and dependable service. It proposes absolutely nothing of the kind. It strikes directly against it. It would open the door to future legislatures—once the theory of a publicly-owned utility tax was established—to tax these to death. In the light of the attitude displayed toward publicly-owned utilities in the past, that is precisely what future legislatures might be expected to do.

The Reed bill also strikes directly at the constitution of the State of Washington, for that constitution, made thirty-four years ago, unequivocally forbids the taxing of public property.

One thing, then, we know now—THE REED BILL MUST BE BEATEN!

But those who would conserve this great natural resource for all of the people of the state must proceed with care.

They must expect to be opposed by the most powerful organization, the most skillful debaters, the unlimited financial resources of the great private companies. They must prepare for a tremendous fight. Their armor must be arrow-proof.

Let us study, thoroughly and unselfishly and with shrewdness, the great problem of state conservation that is before us.

Let us proceed, in our effort for public conservation, along sound economic and political lines. We have to lay now a foundation of law that must endure for the future. Let us make the foundation of law so fair and honest that it will be enduring.

BEAT THE REED BILL! INITIATE A FAIR POWER CONSERVATION BILL!

The same paper takes the announcement by the Puget Sound Power & Light Company of its development program for the coming year as an opportunity to make another public play for municipal ownership. Concerning the power company's \$5,000,000 improvement plan, it says:

Public ownership forces are initiating a campaign now for a law authorizing the formation of water power development districts in the state, along the same general lines of organization as the local improvement districts of Seattle and other Washington cities. Realization is coming to the people of the tremendous potential wealth-creating qualities of the power that nature has given us. The people desire, not only that it be developed for manufacturing and farm irrigation, but retained in the control of the public, and so far as is possible, made secure against future rate extortion.

Private power companies have already invested millions of dollars in Washington's great natural power. They have been in no doubt about the value of it, nor at all hesitant about investing their money. But the people who are most concerned and have the elementary right to conserve public property in the public's interest, have been a bit backward about protecting their future interests.

The Puget Sound Power & Light Company's announced campaign of Forward March in the power industry ought to stimulate the public ownership forces to do a bit of active Forward Marching for themselves. And it will.

Seattle's great success with public hydroelectric and power development, taken with that of Tacoma and other

Washington cities, brings public ownership out of the class of experiments. In fact, Seattle's strong showing has rather forced private companies to extend themselves to keep up with the procession.

All of this public ownership pioneering ought to be useful to the people of the state, and we believe it will be reflected in a sentiment that will make state-wide development in the public's interest an assured fact.

Municipal ownership agitation in the several cities on the Pacific Coast where such projects are being considered is bringing out many arguments on both sides of the question hitherto unconsidered. The San Francisco Journal, in commenting editorially on a statement issued in defense of municipal distribution

of power in that city points out some very pertinent objections to public ownership. The statement concerns the 5-cent street car fare, but it reveals that this low fare is possible because bond payments and extensions have been financed out of the fund set aside for depreciation. It also reveals that when the present equipment wears out, it will have to be replaced by borrowed money, which means another bond issue. The paper has the following to say on the subject:

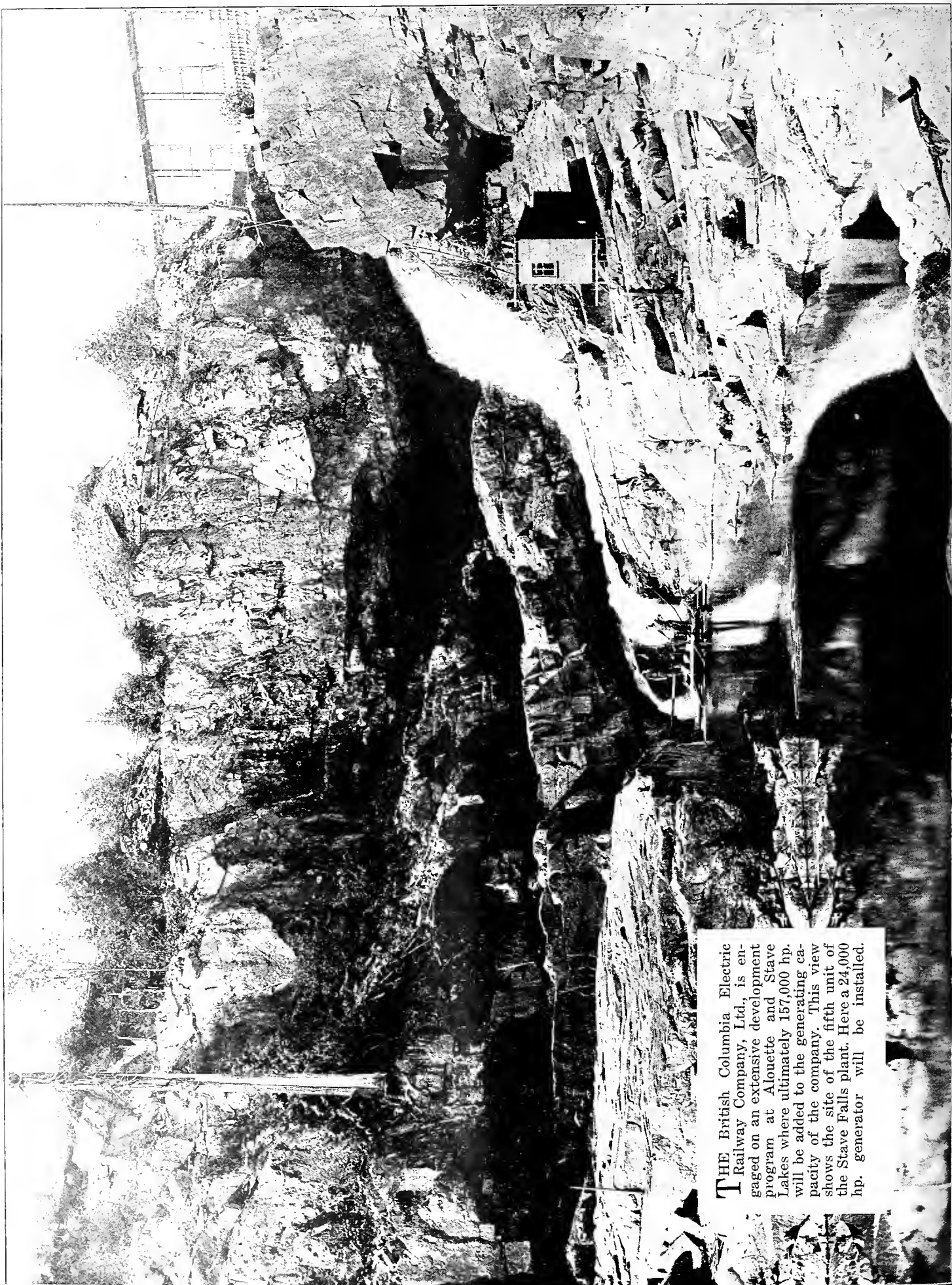
This illustrates the point that municipal ownership as politically conducted may seem to have smooth sailing as long as it can enjoy the benefit of new equipment and operation at the expense of capital, but that sooner or later a day of reckoning comes when all the cards must be laid upon the table. The other lines in the city are operating under franchises that require them to furnish service at a 5-cent fare or else forfeit the franchises. That again is not a virtue we enjoy because of municipal ownership.

When people are searching for precedents to justify the city to go into the light and power business in competition with the utility companies now in the field, it might be possible to select happier illustrations than any to be derived from our street car lines. If the new venture were no more successful than that one has been, and there is no reason to expect that it will do even as well, it seems certain to invite a loss that will make all former deficits look like loose change. People are deluded into considering the thing by grandiose talk about the fabulous profits the city will make. Even with the most favorable of skies there promises to be no profits at all, and, with the average run of adversity, the city will be confronted by a staggering loss.

It is not altogether necessary to assume that the bond money, if voted, will be swallowed up in a saturnalia of graft, and that the taxpayers will get nothing for their money. That would be drawing the picture altogether too dark. But it takes net profits to turn a business venture, however large, from a liability into an asset. And if the business is not an asset it is a liability.

One of the ever present dangers to private enterprise is the one of over-expansion, which is taken on in flush times, unmindful of the fact that when slow times come the thing that looked like an asset may become the most burdensome kind of a liability. This danger is greater than ever in municipal ownership where the restraining hand of private interest is absent. The money of the city is quickly wasted chasing a rainbow, because it is so much fun to spend it by those who do not have to dig into their pockets to provide it.

One more delusion of municipal ownership is the idea that indebtedness so created stands against the utility upon which the expenditure was made. It does not, and everyone familiar with municipal finance knows it. The only thing that enables a municipal utility to sell bonds is that these bonds stand against every dollar's worth of property in the city. Every home or property owner in San Francisco is personally interested, because it is his property that is threatened with debt from which there is no escape. That is, there is none short of bankruptcy or death.



THE British Columbia Electric Railway Company, Ltd., is engaged on an extensive development program at Alouette and Stave Lakes where ultimately 157,000 hp. will be added to the generating capacity of the company. This view shows the site of the fifth unit of the Stave Falls plant. Here a 24,000 hp. generator will be installed.

Between Manufacturer and Consumer---- Who Bridges the Gap?

By E. A. Kincaid

Associate Professor of Commerce, McIntyre School of Commerce, University of Virginia

THE manufacturer of electrical products who seeks to enter the Pacific Coast market will ordinarily make a contact with existing middlemen who in turn sell to the consumer. The term middleman as here used means everyone who stands between the prime producer, the manufacturer, and the ultimate consumer and takes a profit for the risks he runs, in addition to compensation for his services. The middleman must be thought of as one who takes title to the goods he handles and assumes all the risks of the market that are incidental to the handling of these goods. Factors in distribution that do not meet these tests may be classed as mere intermediaries in the process of distribution. Thus the jobber and the contractor-dealer are distinctly middlemen, while the manufacturer's agent is an important intermediary.

Electrical goods distributed in Pacific Coast territory may go to the consumer by very simple or by rather complex routes. The most simple is sale directly from the manufacturer to the consumer. Here consumer may mean an industrial corporation, such as a lumber manufacturing concern, and it may mean the consumer who ordinarily buys for home use. Goods may also move from the manufacturer through the manufacturer's agent to the jobber and thus to a retailer, who may be a contractor-dealer, an electrical dealer, a hardware store, a department store or a house furnishing concern.

Importance of Distribution Cost

It matters a good deal just how many middlemen and intermediaries are included for the very simple reason that the greater the number of intervening factors the greater the cost of distribution. It is essential to give serious consideration to the costs of distribution because they constitute a sort of overhead burden from the point of view of both the manufacturer and the consumer. (The term consumer as here used is sufficiently clarified in the accompanying chart. The term may mean any one of the several things there set forth, depending upon the character of the product under consideration.) To know what this burden consists of is a prerequisite to its reduction and its reduction is essential to the expansion of the electrical market. At this very hour great leaders in the business world are stressing the importance of lower prices. One way to attain them is through the increase in the volume of sales

IN reaching the Pacific Coast Market various setups of middlemen and intermediaries confront the manufacturer. In this article Mr. Kincaid discusses these channels of distribution and points out the merits and shortcomings of each. He points out that a vision of the future possibilities of the region is one of the greatest assets of a successful distributor.

and a lower cost per unit of such sales. There is no industry so much in need of stabilization as the electrical industry in all its multiple phases.

While some goods move from the manufacturer to the consumer, the most simplified route to market, and no small portion of the total volume goes from the manufacturer through the manufacturer's agent to the

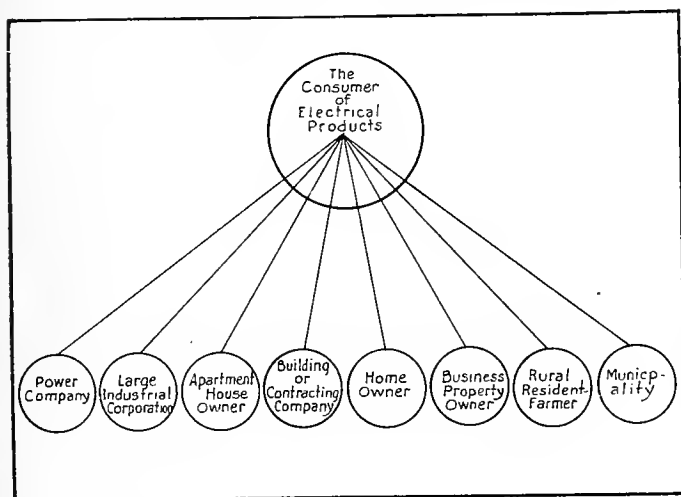
jobber and thence to dealer, the great bulk of things electrical are sold by the manufacturer to the jobber. This traditional and orthodox method of distribution is still potent in Pacific Coast territory. The most powerful electrical distributors are the older and well established jobbing houses. These with their clientele of dealers and their influence born of power and knowledge of the market, constitute the keystone of the distributive system. Generally speaking they have formed contacts with the best retail establishments and they stock the widely known and standard lines of goods. It would not be accurate to say that jobber distribution dominates the Pacific Coast territory, but it is a fact that some of the jobbing houses have such powerful affiliations that this method of distribution must be reckoned with in working out any other.

It would not be far from correct to say that all jobbers in the territory could be divided into two groups; (a) established and regular jobbers and (b) comparatively recent and struggling jobbers whose methods are more or less irregular, as the trade sees them. But it must be said that not a few of the latter group are well on their feet. For present purposes it is not necessary to linger over the terms, "regular" and "irregular." This matter can wait with the mere statement that the terms refer to an actual condition which must be taken into account in the analysis of the Pacific Coast electrical market.

As a general rule manufacturers prefer to sell to jobbers who are able to perform a jobber's functions and many manufacturers are getting satisfactory distribution this way. But the fact remains that numbers of manufacturers appear to be unable to make contacts with established jobbers. These manufacturers fall into two groups: (a) old and well established manufacturing houses that have overlooked the importance of the Pacific Coast as an electrical market and (b) numbers of new and fairly recent manufacturing concerns that seek to break into the market there. The latter are anxiously alert

for that volume of sales which will enable them to survive in the competitive struggle.

When a representative of either of these groups approaches an established jobber with the idea of having the latter stock his line he cannot be certain of finding him in a receptive mood. More than likely the jobber will say, "When you can show me that you have created a market in this region for your products, we will stock them." The very fact that there are numbers of manufacturers who have not created a market on the Pacific Coast or elsewhere is the logical explanation for the division of manufacturers into the two groups here referred to. This is the tone which jobbers everywhere and in all lines assume when production is excessively developed and distribution is lagging in the rear. Such an attitude



Diagrammatic meaning of electrical consumer.

is but the expression of the fact that competition in the electrical field is on the side of the manufacturers. There is a buyers' market so far as jobbers are concerned.

The Manufacturer's Problem

When the manufacturer has been turned away by the established jobber what does he do? There are several possibilities. (a) He may undertake to form a connection with the best of the weak and but poorly established jobbers. There is at least the prospect that such a jobber will sometime become established and function as a jobber should. When such a jobber has accomplished this he is apt to become regular and obtain recognition from those who account themselves as regular in just the sense that the trade understands this term. If no such jobber can be found, then perhaps (b) the manufacturer can convert some strong and promising retailer into a jobber. The thing has been done often enough to demonstrate that it is not impossible. One not infrequently finds these hybrid outlets—a combination of retail and wholesale business. Not infrequently in Pacific Coast territory one meets with retailers (dealers or contractor-dealers) who are growing out of the retail into the wholesale business. Where the thing is being done one may expect to find support from one or more manufacturers who have found it impossible to enter the market in any other way.

But suppose this last possibility proves impracticable, what then? There remain for the consideration of the manufacturer three possible lines of procedure. (a) He may form a contact with a manufacturer's agent. There is much to induce this step, for the manufacturer's agent has played and still plays an important part in the development of the Pacific Coast electrical market. There are a goodly number of such intermediaries and they have been in the field since the days of the Gold Rush of '49. Moreover the manufacturer's agent functions efficiently and today manufacturer's agents on the Pacific Coast are giving many eastern manufacturers, and not a few foreign ones, their share of an expanding market. It is true that the typical manufacturer's agent carries several closely related and non-competing lines. This is essential to the efficient performance of his function in distribution and if the manufacturer finds such an entrance to the market incompatible with his interests he may consider (b) the appointment of a direct representative.

The Manufacturer's Agent

A manufacturer's representative differs from the manufacturer's agent chiefly in this, that the latter handles products of several manufacturers while the former handles the products of but one manufacturer. The manufacturer's agent will select first one product and then another until he has a closely-knit group of products put out by six to a dozen manufacturers. Thus it follows that the manufacturer's agent gives his attention to the sales promotion of several manufacturers' products, while the manufacturer's representative concentrates all his attention upon the products of a single manufacturer. The relative merits of these two functionaries must wait for later treatment. There are numerous examples of both in Pacific Coast territory and they constitute an interesting phase of the electrical market as it is now organized here. For the present we are interested in giving only a general view of the organization of the electrical market as it now functions.

(c) If it should so happen that the manufacturer has obtained a good volume of sales through a manufacturer's agent or a manufacturer's representative he may become dissatisfied and incline to the view that a factory branch would best serve his interests. Such things have happened. Not a few manufacturer's agents have built up an excellent volume of sales for some eastern manufacturer only to be told, after many years of hard, pioneer work, that the manufacturer has come to the conclusion that his interests on the Pacific Coast will be served best by a factory branch under the charge of a salaried manager. There are conditions under which such a shift is economically justifiable but such a procedure is not without certain dangers. However, these matters must wait for special treatment.

Where manufacturer's agents, manufacturer's representatives or factory branches are used, sales are made by them to jobbers wherever possible. But it so often happens that when satisfactory jobber distribution is out of the question, one finds each of

them selling in a variety of ways. Not a few eastern manufacturers have started out in Pacific Coast territory with manufacturer's agents. The latter is under pressure to make sales from the start. If he is able to interest old-line jobbers in his lines, very good. If not, he seeks to interest recently established jobbers who are more or less irregular in their methods, depending upon the exigencies of the situation confronting them. Likely enough the manufacturer's agent preferred to do business with established jobbers, but what has his preference to do with it? He must sell one way or another and the manufacturer's agent thrives best who has plenty of initiative and determination. Hence, it is not uncommon to find manufacturer's agents selling directly to dealers or even to consumers. The same applies to manufacturer's representatives. A manu-

The question now naturally arises as to what factors will influence the manufacturer in deciding which of the several methods of distribution to select for his own. Of the various factors that play a part here, probably (a) volume of sales will come first. It is logical to assume that the manufacturer will seek the channel to market that will give him the largest volume of sales, if the other factors are equal. This factor works both ways, for it is certain that the volume of sales influences the method of distribution and it is no less certain that the method of distribution affects the volume of sales. Every manufacturer seeks to increase his gross receipts for it may well be that in doing so his operating expenses do not increase in proportion. If so, his profits expand and his position in the competitive struggle is improved thereby.

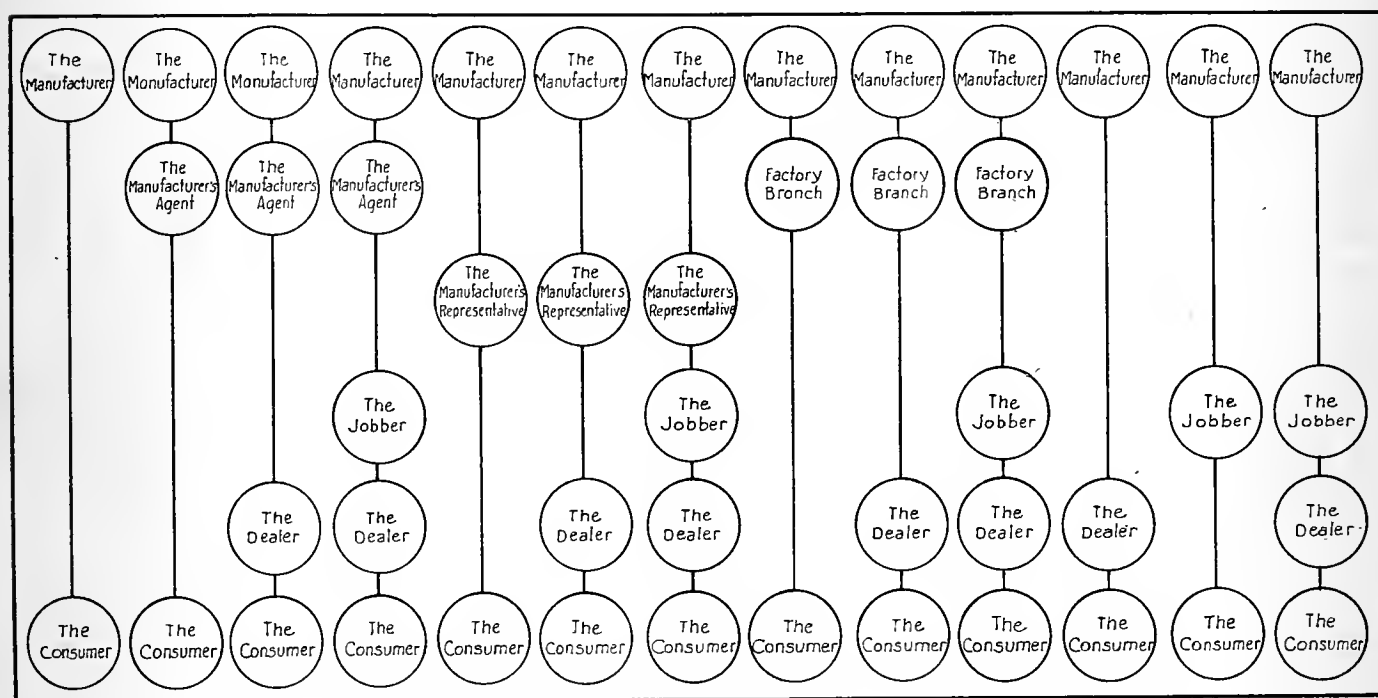


Chart showing the channels by which electrical goods travel from the manufacturer to the consumer.

facturer who is strong enough to enter the field with a factory branch is apt to find jobbers interested in his lines. But, if such a manufacturer feels his grip on the market slipping through the failure of the jobber to get adequate distribution, in time past factory branch managers have not scrupled noticeably at selling over the jobber's head.

The Pacific Coast Situation

The competition for a place in the Pacific Coast electrical market is generally keen and not always gentle. The pressure from the manufacturing end is so severe that irregular methods of reaching the market are, as a whole, about as common as the traditional and regular ones. Thus one finds manufacturers selling directly to consumers, directly to dealers newly created and standing on trembling limbs, directly to jobbers who were so recently retailers that they still face the wholesaling business from a retailer's angle.

Method for Reaching the Market

If a manufacturer comes into the market with a new and relatively unknown product the manufacturer's agent is his best hope. That functionary is often a very effective business-getter. His methods may be somewhat guerilla-like, but they are more than apt to be successful in putting a new product into the market. It is for this reason that manufacturer's agents are so numerous and effective in Pacific Coast territory. They are generally in a position to get the desired volume at the earliest possible date and at the lowest cost. Where the volume of possible sales is small it is not easy to interest jobbers and the manufacturer might do well to give his product to one of those scouts for new business, the manufacturer's agent. They have been known to get business right out from under the noses of powerful rivals. When a product has once established itself in the market and a reasonable volume has been at-

tained the jobber may be induced to take it and this move will be made at the expense of the manufacturer's agent, if thereby the volume can be increased.

(b) The cost of distribution is a factor that cannot be treated separately from the volume. A distributing organization such as a highly developed jobbing business may have is generally in a position to show the lowest costs per unit sale. This is all the more the case if the manufacturer can eliminate the manufacturer's agent and sell direct to the jobber. Where the volume of sales has reached a point such that the services of a jobber can be enlisted it is more than likely that the jobber will be able to move the greatest volume at the lowest cost. The evolution of marketing methods has not yet reached the stage where a more effective method of distribution than that supplied by an efficient jobber has evolved. In the last analysis the manufacturer will be influenced by the question of the cost per unit sale made and he will place his distribution on this basis as soon as possible. In the early stages of exploiting a market he may have to work on a different basis. There is always the necessity of considering both the existing market and the potential market. Any method of distribution must take care of the former while working in the direction of the latter, if it is to meet the demands which will permit it to survive.

Eliminating the Middleman

In actual experience the matter of eliminating one or more of the intermediaries through whose hands goods pass on the way to the consumer is anything but simple. One of several experiences in this problem may be cited. A certain well known line of appliances was being distributed to the trade through a manufacturer's agent. He had built up the volume of sales through a period of years until his own commissions were very respectable and the manufacturer was receiving his share of the market. Nevertheless, the manufacturer decided to establish a factory branch and eliminate the manufacturer's agent. There resulted a considerable slump in the volume of sales. The question naturally arises as to the ability of a salaried manager of a factory branch to recover the business built up by the manufacturer's agent who had worked on a commission.

Merchandising Methods

The volume of sales and the cost of distribution are closely related to each other and both are tied up to (c) the methods of merchandising employed in a given system of distribution. Here enters the personal equation, for the efficiency of any merchandising establishment comes down to a question of the men behind it. The merchandising policies of a jobbing house, for example, are but the reflection of the brains in charge of the house. One jobbing house is not as good as another. Some know what merchandising means while others are mere distributors. The actual merchandising methods will determine both the volume of sales and the cost of distribution. Some jobbers tie up to a number of weak retail outlets some of which eventually fail and the jobbers are compelled to write off heavy losses. These impair

the business as a whole and may add to the cost of doing business. When a man leaves town between sundown and sunrise owing his grocer and baker and candlestick maker considerable amounts, it follows without a doubt that those who stay behind and pay their bills must also bear their share of this loss. It is just as true of the electrical field as of any other. If the jobber stocks too heavily and reduces his turnover he likewise lowers his profits and increases his costs.

Need for Thought

It just as well may be laid down right here as a fundamental that no manufacturer can ignore the merchandising methods of his distributors for these methods determine whether the distributor is actually a merchant or not. What right has a manufacturer to expect a good volume of sales at a low cost per unit at the hands of a distributor who does not understand the fundamentals of merchandising and demonstrates them from day to day by his actual performance? Is it good merchandising for a jobber to refuse a line from a manufacturer when doing so will induce that manufacturer, in retaliation to convert some dealer into a so-called jobber, who must of necessity merchandise along irregular lines? I have often wondered if the established jobbers are thinking about those very merchandising methods which are doing so much to demoralize electrical distribution. To my certain knowledge some distributors are thinking about them most earnestly while others seem to think it is the place of the manufacturer or the power companies or some one else to do their thinking for them. If the thinking along these lines is to be left to the manufacturer it may be that he will think so effectually that he will eliminate the jobber and the contractor-dealer from his scheme of distribution. If it is to be left to the central station perhaps it may be decided that central station merchandising is the best solution of the problem. Some distributors appear to think that the problem can be passed on to contractor-dealers but while they hug this delusion, department stores, house furnishing concerns and hardware stores are invading the field. After they once get a grip on the field who can say that they will continue to patronize the electrical jobber? Clearly some one has some thinking to do. The future of the electrical industry has to be guided and shaped; it cannot be allowed to drift. The question arises for consideration; is it being shaped with the vision of industrial statesmanship as a guide?

In addition to the three factors referred to (d) the consistency of the method of distribution with the economic future of the region whose markets are sought must be considered. A business must be built along those lines that will meet the long run tests. The Pacific Coast territory is growing steadily and along substantial lines. Any distributive system that will stand the tests of time must be constructed in harmony with this fact. In the long run it pays the manufacturer to affiliate with those distributors who have a vision of the future possibilities of the region. The broad-minded and far-seeing distributor is worth encouragement at the hands of the manufacturer. Such a policy will pay dividends in the end.

Customer Ownership Is Public Ownership

By George L. Myers*

Assistant to the President, Pacific Power & Light Company, Portland, Ore.

THE World War had its compensations along with its curses. One of these compensations fell to the lot of our public utilities. The demand for a prosecution of the war from 1914 to its end created an unprecedented demand for capital. The public utilities, under conditions of restrictive regulation, were hard put to find this necessary capital at a cost possible for them to finance, yet the capital had to be obtained because the service of the public utilities was one of the basic essentials of war requirements. Out of this baffling situation grew the idea of selling securities direct to those within the territory served. This seemed to be the only means of promoting sales, while maintaining a cost that would not prove prohibitive. It produced the greatest innovation in modern finance as applied to the operation and development of public utilities, and it occurred at a time really crucial in the relations of the public utilities to the people under conditions of governmental regulation.

The social value of this practice is that the public utilities have been thereby enabled to contribute to the incentive for and the practice of thrift. It thus has been a real benefaction.

The political significance is the policy of governmental regulation which largely reflects public sentiment. This sentiment finds expression in the understanding and material interest of the public within the territory served. The more that material interest is built up by possession of what makes for economic security, the more constructive will regulation become.

The economic significance is the enhancement of the facility with which capital can be obtained and the lesser cost of it. It is entirely apparent that the greater the spread of securities within the territory served by a public utility, or, in other words, the greater the number of security holders, the more readily the security should be sold, and this facility in sales, consequently, should serve to bring down the cost of capital, which cost is determined in the main by the security of the investment and the market for the security represented by it. Furthermore, local investment and the growth of it bespeak a confidence in the ability of the management and the stability of the property, which fact should not only tend to build up more satisfactory public relations, but should actually make it possible to finance at less

THERE are many phases to public holding of public utility securities aside from providing capital for development and expansion. Chief among these is the economic and political gain to the utility in a form of ownership which provides a practical scheme of public ownership with a preservation of private initiative and enterprise. It is this that has made possible the scientific and economic progress of the present day public utilities.

cost other classes of securities, senior and junior, among the centers of largest capital outside the territorial operations of the utility. This reduced cost of capital should inure ultimately to the good of all users of the service by helping to make it possible to supply it at lower rates, which results in a more widespread use of utility service and which in turn benefits alike the user and the security holder.

It also makes it possible to stabilize and maintain a better market price for the security distributed locally.

The editor of the New York Times, in commenting upon this aspect of public ownership of securities, said:

"Those advocates of the plan adopted by many public utility corporations of distributing their stock to customers on the part payment plan appear to have shown a powerful argument for their system in the last few weeks. They are able to point out that the public utility stocks marketed on this basis have declined proportionately less than any other group, mainly because they have been held outright by such a large number of persons. It is indicated in this connection that most of this stock is purchased for investment, and it means little to the average stockholder whose name is on the books of the corporation and who receives dividend checks, whether the shares decline or advance in the open market, because he has no intention of selling even at a figure that would net a good profit."

Again, there is economic gain because such marketing of securities taps new sources of investment for highly essential purposes of production, adding thereby to the sum total of our national wealth.

Then, there is the economic and political gain in a form of ownership, which provides a practical form of public ownership with a preservation of that private initiative and enterprise which have made possible the remarkable scientific and economic progress of our public utilities.

The remarkable progress of this nation-wide movement is evidenced by the statistics gathered under the auspices of the National Electric Light Association. This survey covered 156 companies and disclosed the fact that since 1918, to and including 1922, the shares sold under the public ownership plan have increased from 30,783 to 1,750,707 and the stockholders from 4,115 to 198,018.

The significance of the employees' activity in the sale of securities is hardly secondary to that of improved public relations and greater facility in raising capital. Under proper direction, it must enhance the loyalty, interest and education of the employee, which in turn reflect favorably on the

*Extracts from an address before the Thirtieth Annual Convention of the Pacific Coast Gas Association, Del Monte, Calif., Sept. 11-14, 1923.

utility's operations, thus increasing the esteem in which it is held by the public it serves. An employee to sell must be able to tell. This means that the employee must become versed in the facts about the utility and the industry. Naturally, such activity stimulates interest. This interest leads to the building up of a fund of information, which makes for the education of the employee in the broad sense, and which makes him, by reason of his contacts with the public, of assistance in setting the public right with reference to the problems of the public utility and the industry. It lifts the employee out of the groove in which his mind and service run in applying his time to the immediate task in hand. The interest thus aroused and the knowledge thereby attained provide a broad perspective which assists materially in creating greater loyalty.

Then, there are those benefits derived by reason of the cooperative effort put forth, which establish personal contacts creating a mutuality of interest and sympathy among employees. In getting them together an exchange of ideas and experiences ensues, which serves to build up a common interest and understanding about the utility and the industry, and the political and economic factors governing operations and influencing finance in general. The employee, through his activities, becomes sold about the utility, believes in it and comes to have a full appreciation of the fact that thrift is the foundation of investment. In this way, there is personal gain and a better spirit of cooperation.

It is not necessary to stress upon the importance of employee-ownership. This again is well understood. The employee is not only encouraged in the practice of thrift and brought to a recognition of its benefit, but he becomes the more interested and his possession of the security gives a better appreciation of its value as an investment in principal and return. Each employee, irrespective of his duties, stands for the utility so far as the customer coming in contact with him is concerned. If the employee is one of ordinary intelligence he will not purchase stock in the company without first having made some investigation of its financial condition, the value and extent of its properties, the possibilities of its future expansion and the extension of its lines, and he cannot sufficiently acquaint himself with these things to become willing to invest without becoming a more interested employee and making the company's business his business and not merely the source of his pay check.

It should be borne in mind that public confidence and support are not won merely by effecting the sale of a security. It is obviously true that a material interest has been thereby created which tends to build up a serious regard and responsibility for the protection of private property, but the service of a public utility is so seemingly commonplace and sensitive to the user of it, whether or not he is an owner of a security, that the user's interest and good-will must be constantly maintained by well nigh eternal education and vigilance. This means that the user who becomes a stockholder must be kept fully and candidly informed of the facts about the utility and the industry of which he has become a part, and

that the treatment accorded him by those with whom he comes in contact in his service relations with the utility must be at all times most courteous and forbearing. There must be established a contact with stockholders by the written and spoken word which will give them a genuine feeling that they are a part of the utility whose service they are making possible by their investments, which are a manifestation of their confidence in the management of the utility, or in the integrity and judgment of the one from whom they purchased the security. In this necessary work of obtaining confidence and support each utility must go to its stockholders with the essential facts about its business; it must not expect its stockholders to come to it, if it is to achieve sustained interest and support from them.

The public ownership of securities is one of the three basic essentials wherewith to build up and maintain satisfactory public relations; namely, employees' relations with the public, public ownership of securities, and public information. The first represents the human contact in service relations; the second, the material interest; and the third, understanding. The material interest begets caution and conservatism of judgment in protecting that material interest from unjust, unwise and irresponsible attack by designing and ambitious persons and those who, through either lack of understanding or prejudice, give rise to destructive agitation and action.

Too much emphasis can not be laid upon the importance of all companies, large and small, adopting this plan of finance. The cumulative influence of public sentiment in the localities served by the respective companies makes up the public sentiment of the state and the public sentiment of the state is reflected in legislation and regulation. The fact that people in the localities served invest in the securities of the utility tends to create on their part a greater interest in its affairs and the interest thus aroused makes for understanding of the utilities' problems and brings about a more constructive and fair point of view.

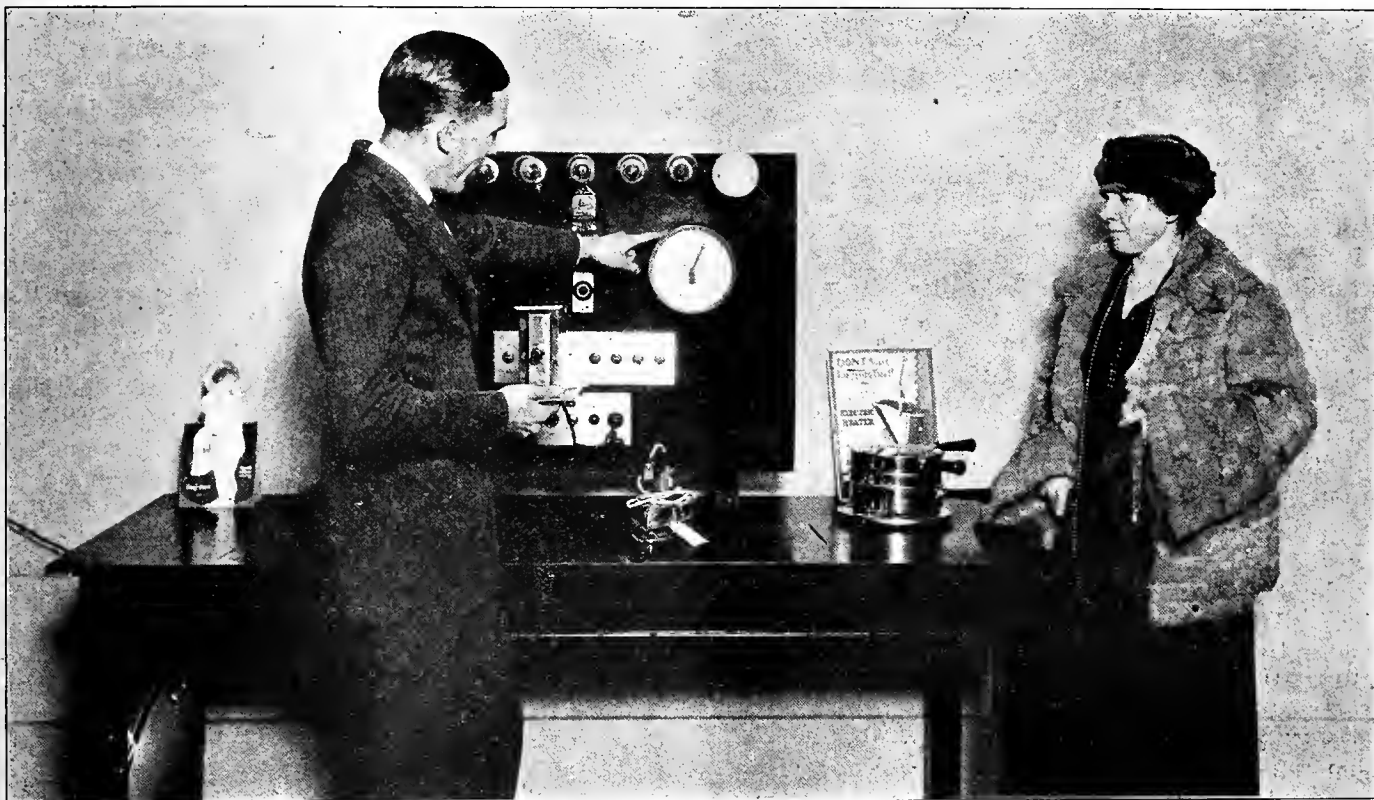
The Edison Electric Illuminating Company of Boston, Mass., has evolved a novel plan for the development of its household appliance business. This takes the form of a series of "traveling shows" in the small towns in its territory. Briefly, the plan is this: The company rents a hall in each town visited and invites the local electrical contractors and dealers to join in an electrical exhibit at no cost to the local men. The shows are held in each town for a period of one week, and no admission charge is made. The space in the hall is drawn for by the exhibitors, and special decorative equipment prepared by the company provides an excellent place for the sale and demonstration of appliances. The central station takes the remaining space for itself and the current consumed by the exhibitors is not charged for. In addition, the hall is floodlighted at night, entertainment is provided, advertising is arranged for in the local newspapers, posters are displayed throughout the territory.

Visualizing Appliance Operation Cost

WHEN a customer at the Boulder salesroom of the Public Service Company of Colorado evidences interest in that all important point, the cost of operation of an appliance, the salesman does not simply make some vague statement and let it go at that. He leads the customer to "The Board," attaches the appliance the customer is interested in and the housewife sees for herself, accurately registered, the exact cost in cents per hour of operating that particular device. If it be a lamp, the same procedure is followed. The costs shown are for Boulder's lighting rate, which is 11 cents per kw-hr., and for the power rate, which is 4 cents per kw-hr.

The device was created by the meter department of the central station at Boulder, and constructed there. It is located on a table near the front of the salesroom, convenient to the larger appliances such as washing machines, vacuum cleaners and ironers.

The experience of the central station at Boulder has been that there is a great deal of ignorance among housewives and people in general regarding the cost of operation of appliances, and in nearly all cases the opinion held is that this cost is too high. At the salesroom the housewife does not have to take the salesman's word for it. She sees the appli-



W. G. Clary of the Boulder office of the Public Service Company of Colorado demonstrating to a customer what it costs to operate an electric toaster.

"The Board" consists of a meter panel, 3 ft. high and 4 ft. wide, on which there is mounted a standard watt-hour meter and an ammeter which has been calibrated to read cents per hour. Both scales on the ammeter are direct reading, the outside one applying to the lighting rate and the inside one to the power rate. All of the current used on the board passes through the watt-hour meter.

Along the top of the board are seven flush sockets in a row in which have been placed 15, 25, 40, 50, 75, 100 and 200-watt lamps. Between the meter and the ammeter is a door-bell transformer, with a push button and a buzzer. In a row along the bottom of the board are eight toggle switches which operate the seven lamps and the door-bell transformer. Below these are a hot flush receptacle and one receptacle with toggle switch and pilot light.

ance actually operating and the cost of operation scientifically recorded. The sales possibilities of such a device are readily recognized. Visual demonstration has proven to be a far better sales argument than any amount of printed literature that may be handed out to the prospective customer.

The device is also useful for customer education on the subject of meter reading. Occasionally a customer complains that there has been a mistake in her meter reading. It is an easy matter in such a case for the company man to show how a mistake one month is possible but that automatic rectification of the error will be made the following month.

The experience of the Boulder central station has been that the device is one of the most successful sales helps yet devised and that it possesses a genuine power to put over sales.

Advertising for the Central Station

By Theodore Watson

Service Manager, Johnston-Ayres Company, Advertising Specialists, San Francisco

AT the close of the article in the Nov. 1 issue I promised to go more into detail regarding some of the factors that must be considered by the central station in analyzing its advertising and selling problems.

First on the list was "Attitude of the public." Probably no other factor is as important. Even where the station enjoys a monopoly and the people can buy service from no other source, friendly public attitude is of very great value.

When the people and the politicians are passive toward the central station, the management is relieved of harassing agitations and a hostile press and can devote its energies and attention to building up the property and improving the service. Also, with public nagging absent, cost of rendering service all along the line from meter reading up, is considerably lessened. The western pioneers when crossing the plains made better and faster progress with less loss of life and property when not molested by hostile Indians.

One hundred per cent favorable public attitude, however, is a remote possibility for any utility. Even under very favorable circumstances some people are inclined to carry chips on their shoulders when it comes to the central station. The utility is too often the butt of jokes and the subject for newspaper cartooning. This varies to a greater or lesser degree according to local conditions, the quality of service, and the extent to which the central station has acquainted the people with its problems, policies, and program.

Now, there are two distinct phases to the subject of public attitude. One has to do with the principle of government-operated utilities versus private ownership. The other phase concerns the sale of electricity. It is the latter phase with which we are mostly concerned in this discussion. In my opinion the fight over the question of government-operated utilities will be settled on the basis of rates and not on service or good-will.

To be sure, the quality of service rendered by the central station and the public attitude toward the power company will help to hasten, retard, or head off entirely municipal ownership. But if the people come to feel that government-operated utilities are able to give them electric power cheaper than privately owned companies, then, regardless of how well the central station may stand in the community, they will demand government-operated

PUBLIC Utility advertising must be planned with a full knowledge of the public attitude. If a large measure of good-will is the happy condition in a community, then the advertising may be safely devoted to stressing the greater use of the utility's product. If the opposite condition prevails, then advertising and personnel policy should be directed with the view of selling the company to the people. This is the second of a series of articles on the subject by Mr. Watson.

service just as they will patronize the chain stores because they are convinced that these stores can sell at lower prices. They may have only the best of feeling for their old friend the "service" store with its accommodating delivery, exchanges and credit, but "money talks."

It is thus that people view the economics of their electric service. It may require a practical and painful demonstration for our citi-

zens to realize that the laws of economics do not obligingly suspend operation for one group of men while remaining in full force for another group, and to learn the significant relationship between rates and taxes. So, then, in my judgment, the executives of a central station as long as it is giving the best service it can, need not concern themselves with the public attitude as it pertains to municipal ownership, unless, of course, there happens to be some peculiarly obnoxious or unfair agitation which they cannot let pass unnoticed.

In the main, however, it is the effect of public attitude on the sales of the commodity and the procuring or renewing of franchises, with which the central station management should be decidedly concerned. If, for any reason, the people are antagonistic, efforts toward improvements in service are viewed with suspicion. Public announcements by the power company or advertisements are discounted or taken "with a grain of salt." Any evidence of liberality or extraordinary service must "have a nigger in the woodpile." This nullifying influence to advertising varies in indirect ratio to the degree to which the central station enjoys public confidence or good-will.

Central station advertising, then, should be planned with a knowledge of public attitude. If a large measure of good-will is the happy condition, then the company's advertising may safely be devoted to stressing greater use of its products and teaching the lessons connected therewith. If the opposite condition is found, then the company's advertising and personnel policy should be designed patiently and persistently to "sell" the company to the people. After public antagonism has been noticeably lessened and a fair background of public favor built up the advertising can be changed to sales messages with an institutional flavor.

As a matter of fact the institutional element in all central station advertising should be apparent. As stated in the first article, central station adver-

tising has a two-fold work to perform—the building up of a better public relationship and increasing sales of the company's products. If, however, the attitude of the public is not its problem, the advertising as stated in previous paragraphs can carry the sales load and at the same time be so designed and worded as to create or foster favorable public attitude.


The attitude of municipal and state administrations, another factor affecting the complexion of central station advertising, is closely akin to the attitude of the public. Its greatest importance lies in its effect on the granting or renewal of franchises and on legislation.

In preparing an advertising campaign to build up or foster favorable public attitude, there are several angles from which to approach the readers of the messages. A favorite avenue of approach is the informative method—tell the people all about the company, its operation, facilities, etc. This method is not without its merits, for lack of information on the part of the public is one of the most difficult handicaps with which the central station is burdened.

Much kicking and knocking of utilities is done by people who don't know the facts in the case or who don't realize that there are two sides to the

question. Many of the difficulties and problems incident to rendering service are not known or understood by the public. It is a trait of human nature to accept and take for granted a well nigh perfect electric service, and yet complain bitterly if the current goes off for a few seconds on infrequent occasions. The average person simply does not realize the big obstacles constantly encountered and the strenuous effort necessary at all times, in order to maintain continuity of service.

Fortunately, the people seem to be interested in the subject of electricity. They want to be told all about new developments both as to service and appliances, and in connection with the growth of the community. This makes it much easier and simpler to get across an advertising message. The Gas and Electric Company, of Baltimore, Md., used this method very effectively in a campaign a year or so ago. Each advertisement pictured and told of some phase of the generation or transmission of power. The story was told in a human, friendly and interesting way. The reader was made to feel that he was welcome and wanted on this tour of inspection. Other companies have done the same thing with very successful results.



The Blind Man and the Lame Man—
Aesop 1923

You've heard the old story of the blind man and the lame man.
One couldn't see to walk and the other couldn't walk to see.

Said the blind man to the lame man: "Guide me through the swamp."

"How can I do that," replied the lame man, "when I can scarcely drag myself along? But you seem to be very strong, so why not carry me and we will seek our fortunes together. I will be eyes for you, and you can be feet for me."

"With all my heart," said the blind man. "Let us be of service to each other." And having put his lame companion on his back, they traveled on in safety and pleasure.

Now let us make a direct application—or moral—of this familiar fable.

The community is the blind man in the swamp, feeling its way and hoping to find prosperity.

Your electric light and power company is the lame man, because of its need of funds to make extensions and improvements.

Your community will find its way to prosperity just to the extent that the light and power company can find the funds in the open money markets of the world with which to make the improvements necessary.

Kansas Gas and Electric Company
"At Your Service"

Statement No. 51

Why a Power "Trust" is impossible in California


Under the California system of regulation of public utilities by the Railroad Commission which has all the facts before it, the public fixes the rate that it pays and determines the service that it gets. Public utility companies are thus prevented from making large profits but they are not guaranteed against loss.

There can be no such thing as a "power trust" in California where rates, financing and service are controlled by the public through its Railroad Commission. Imagine a "trust" which must serve its customers at prices, and with the degree of efficiency determined by those customers!

The public is the partner of every public utility enterprise under the California system of regulation by the Railroad Commission. The public regulates rates, service and financing. It gets service at actual cost including a fair return upon the reasonable cost of the property used.

The public cannot get any form of service permanently from any source at less than cost.

PACIFIC GAS AND ELECTRIC COMPANY



P·G·and·E·
"PACIFIC SERVICE"

A California company with over 40,000 security holders in the state.

The advertisement on the left is one of a series used to overcome public resistance to the granting of a franchise. Advertisements like the one on the right are helping to maintain and strengthen favorable public attitude for not only the Pacific Gas and Electric Company but for other power companies as well.

Last year the Kansas Gas and Electric Company was faced with the problem of obtaining new long-time franchises in twenty-one cities, which franchises were necessary before the company's refinancing could be accomplished. The public and the newspapers were against the company because new extensions of service could not be built fast enough. A series of good-will advertisements was prepared, each being based on a well known Aesop fable and aimed to show the company's position and relation to the public and the community. One such advertisement used the fable of the blind man and the lame man. Alone, neither could get about, but with the blind man carrying the lame man who could direct the way, the way was made easy. The community was represented as the blind man, the power company as the lame man.

The result of the campaign was the quieting of criticism and the voting of the franchises without opposition.

A notable example of building up favorable public attitude through advertising is the campaign by the Edison Electric Illuminating Company of Boston. Running for over two years and aimed to draw complaints from the public, the campaign has resulted in a far better understanding and appreciation on the part of the people of the company's problems. The advertisements are single column, five or six inches, but appear in one or more papers each day. An appeal to public favor by a series of editorial-advertisements without illustrations, each declaring a policy or point of service, was successfully made by the Monongahela West Penn Public Service company.

In the April 15, 1923, issue of McGraw-Hill Industrial Letter was described a very interesting advertising campaign by the Haverhill Electric Company of Haverhill, Mass. Quoting from the letter—"A new series of public-relations advertisements was started . . . giving the local public a straightforward, clear conception of the differences between the management of a private business and the conduct of a public utility." This was aimed especially at the business men. Some of the headlines of the advertisements are significant—"John Jones may make business profits; a public service corporation may not"—"Public regulation as applied to your business," etc.

In order to correct certain misconceptions on the part of the public and in a way, as an answer, to the statements of certain politicians and newspapers, the Pacific Gas and Electric Company has been running a series of advertisements along the lines of telling the company's side of the story. Some of the headlines are—"Why a Power 'Trust' Is Impossible in California"—"Behind the Scenes with Your Power Rate"—"No Profit Guaranteed"—"Your Tax Collector."

Additional examples of advertisements and campaigns will be given in the next article of this series; also further discussion of factors affecting central station advertising.

Utility Poles Supersede Totem Poles

THOSE who live in the crowded city with its bustle and turmoil and its every provision for comfort and ease are liable to believe that the extension and use of the modern conveniences is confined to metropolitan centers.

The photograph reproduced herewith is significant of the advance of electricity with the advance



The Totem pole of Alaska is being superseded by the transformer pole of the electric utility. Alaska is filled with these poles, the handiwork of the various tribes who have depicted the family and tribal history in their crude wood carving.

of civilization. The Siwash, the Thlingket, the Cynthian and all the other tribes of the Arctic country had little idea of the power for human good that flowed in the water races of their streams, nor had they the sense of living comfort that so appeals and is so necessary to the white man. The Indian lived in primitive fashion surrounded by tribal traditions, customs and callings. These he maintained in his living and portrayed in his crude way on the family totem pole.

This picture was taken in the town of Wrangell, Alaska, where the electric plant is owned and operated by O. C. Palmer. Mr. Palmer has developed a plant of sufficient size and capacity to care for the electrical needs of the town and has himself superintended the construction of the plant and the distribution system. This is but one of the plants throughout Alaska all of which are evidence of the development of that country and of the progress of the inhabitants in their living conditions.

Credits and the Credit Man

By Albert H. Elliot

Attorney-at-Law, San Francisco, Calif.

NO manufacturing or jobbing organization can exist without efficient salesmen. They are the ones who create the desire on the part of the dealer for new merchandise and who guide the dealer's thought in the purchase of material and supplies. Salesmen are, of course, anxious for large sales volume but intelligent and conscientious salesmen are not desirous of volume in excess of a dealer's legitimate requirements. The tendency, however, in the past may have been to stimulate a dealer's buying, not necessarily beyond merchandising possibilities, but, perhaps, beyond good financial judgment.

The credit man, on the other hand, using trained knowledge and the market data available, has often acted to reduce in a measure the volume of certain kinds of buying and has tried to place squarely before the dealer the importance of the moral as well as the financial obligation. It formerly was thought in the electrical business that there was a conflict between a credit man and a salesman. Then the salesman thought that he was the only one who was producing business and he looked upon the credit man as a brake on the machine. The credit man thought that his business was to preserve the assets of his house and he thought that his function was to sit on the safety valve and to prevent the salesman from becoming too optimistic.

Now, however, we are beginning to see that the credit man is a real, constructive agent in business. In fact, we like to think of him as a sort of business doctor and, as such we believe that he should very often leave his desk and go out amongst the trade, visiting customers. A jobber or manufacturer who sells goods has a most vital interest in his customers. He should look at his customers as though they were the trustees of his goods until the goods are paid for in full, and the person who handles the goods should look at the matter in exactly the same way. From this point of view, then, the credit man ties in the business of a jobber or manufacturer with the contractor-dealer.

It should be the business of the credit man to determine by examination of the customer whether he is a good risk—and this ought not to be a purely negative function. In considering the question as to whether a customer is a good risk, of course, the factor of what is known as a moral risk is an important one in the problem.

The second most important factor in the problem is to determine whether the customer is making a profit, or is selling goods largely for the fun of it.

THE author has had long experience in the credit relations situation on the Pacific Coast and has given in this article a thought which is prompted by his intimate contact and knowledge. He points out a function of credit men which should not be overlooked.

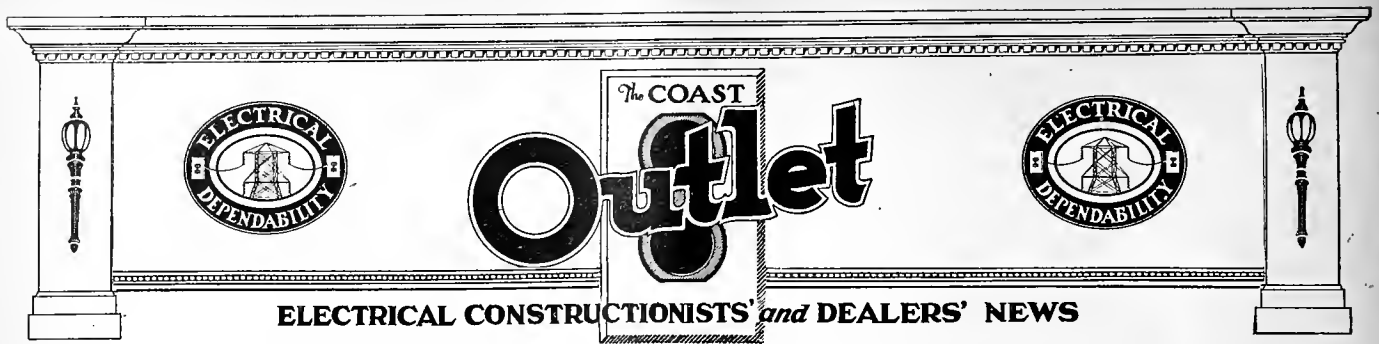
The determination of this question leads to an examination of the customer's bookkeeping and accounting system. It is to be hoped that sufficient confidence can be instilled into all branches of the electrical industry, so that when a credit man or a jobber or manufacturer comes to a

dealer, he will be welcome and not looked upon as a sort of gum shoe man. The credit man is just as human as the salesman and while he may not be so much interested as the salesman in quantity purchases, he surely is interested in the contractor-dealer sufficiently to wish to be sure that the contractor-dealer is making a success of his business.

Like everything else, the whole problem is one of practical business education and by that is meant the education, not only of the contractor-dealer, but of the jobber, the manufacturer and the salesman and credit man of either the jobber or manufacturer. We believe that no one will continue to do business at a loss if he knows that he is doing business that way. It is the function of the credit man in this sense to try to educate the customers of his house so that they will know from their own accounting system whether they are going up or down. A diplomatic and tactful credit man can correct errors, make suggestions, and influence customers in the right direction, and in that sense he becomes a valuable constructive force in any organization.

One of the concrete things which it is desired to put forth in this article is that contractor-dealers should welcome a credit man, never be afraid of him, and should cooperate with him for their own good as well as for the good of the organization which he represents. It is a very rare case when any credit man uses unfairly knowledge gained by an examination of a dealer's books and until it is known to the contrary it ought to be assumed that a visit from the credit man is made in the utmost good faith, and a dealer should listen to him, get acquainted with him, accept his suggestions, and thus understand that his primary function as the representative of his house is to see that the customers of his house are making a profit and are getting ahead in business.

The final concrete suggestion for dealers and dealer organizations is that the credit men of the jobbers or manufacturers should be invited to attend meetings of such organizations in order that better acquaintance may be established. The idea should be firmly fixed that the credit man of a house is not in any sense an enemy, but that he wants to be a friend and wants to understand the dealer and his problems and wants the dealer to understand him.



Electrical Construction

By E. Earl Browne

WHILE the importance of adequate lighting and power systems for hospital buildings is very important, the foot-candles of general illumination are relatively small for wards and private rooms, there being merely enough light from a ceiling fixture to permit the nurse to enter the room and view the patient. The push switch for these outlets is often placed in the corridor so that all noises in the room or ward are, so far as possible, eliminated.

The convenience outlet is installed very liberally so as to permit of the use of portable lamps, heating pads, etc. The nurses' silent call system is probably the most important part of the electrical equipment in a hospital and all devices for use on these systems

should be as simple and infallible as it is humanly possible to make them. The preferable system is operated on 10 volts from a transformer connected to the regular light and power system, and for an emergency stand-by, a storage battery with automatic switch-over, as described in the Nov. 15 issue of the Journal of Electricity, can be used. In this system there are no complicated relays which require being designed or adjusted for either alternating or direct current, there being nothing but a push button at the patient's bed which closes circuits to (1) a light over the bed if in a ward, (2) a light over the corridor door, (3) a light in the nurses' station annunciator, (4) and in any other particular location, such as corridor intersection, diet kitchen or head

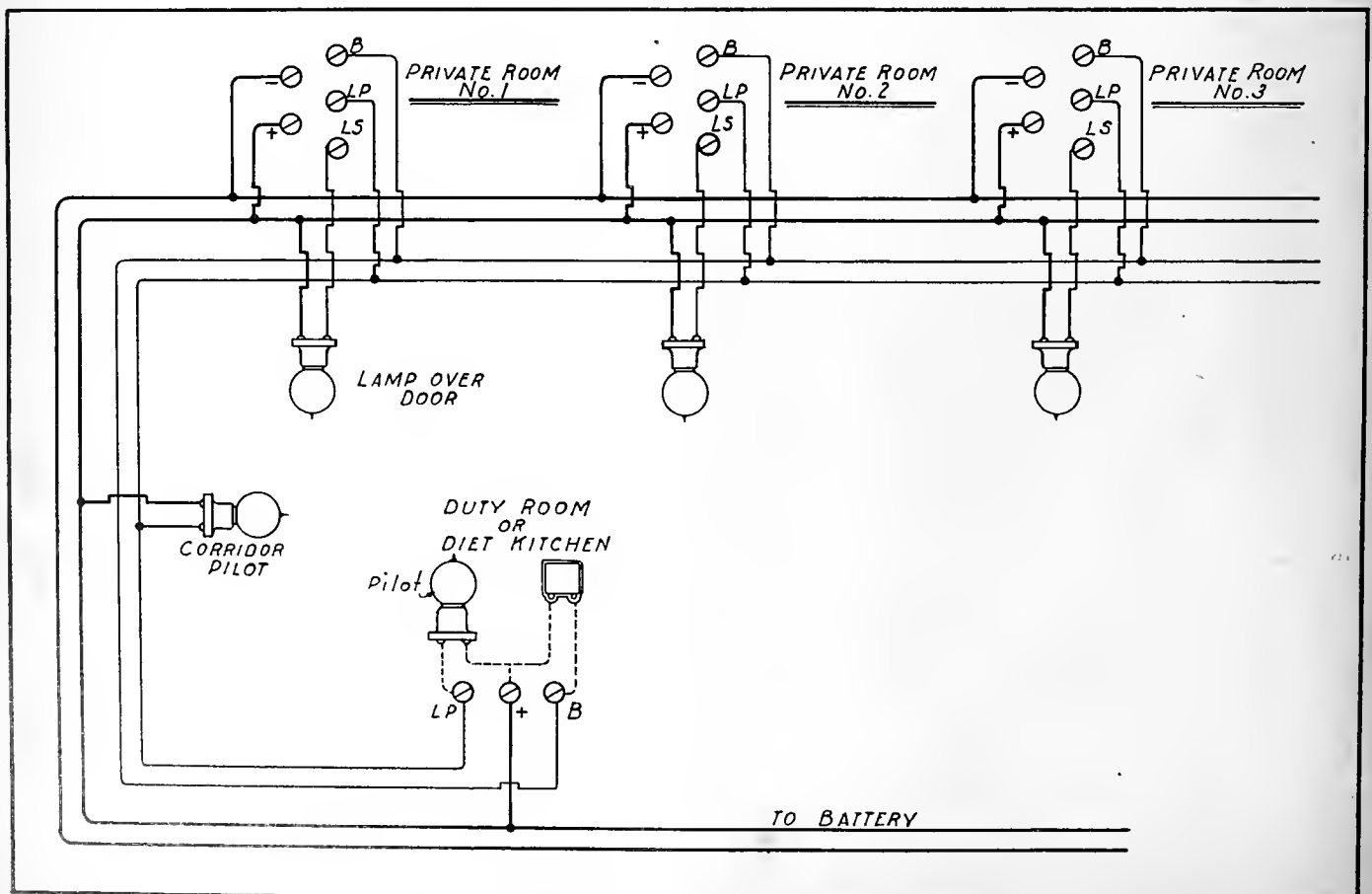


Fig. 1.

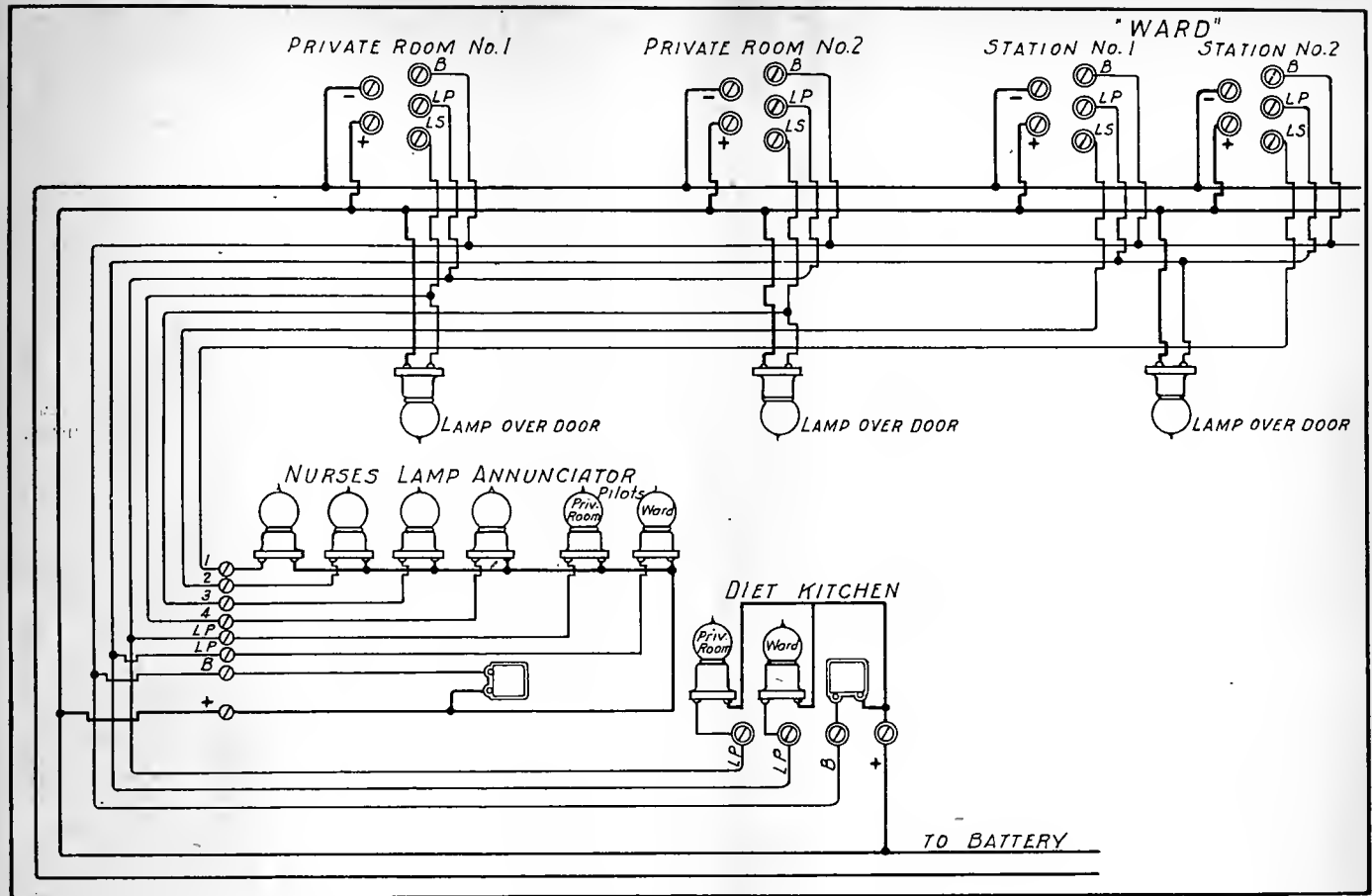


Fig. 2.

nurse's room, where it may be desired to provide additional supervisory signals or elapsed time recorders.

nomical to provide a 32-volt system up to 200 ft., and for a load of 6,000 watts for 200 ft. or more a 115-volt battery should be used. In this latter case a

A complete set of wiring diagrams showing the various connections for all possible combinations would be so little used that it is not to be attempted in this discussion, but there is given, in Fig. 1, a simple layout for small hospitals with a few private rooms and in Fig. 2 a diagram for hospitals with any number of private rooms and wards. As it is essential in laying out a plan to use symbols for the various types of apparatus the ones shown in Fig. 3 are suggested. At present no standard symbols are available as is the case with light and power wiring.

A doctor's call system whereby any physician may be called to the telephone is provided in corridors, wards, etc., and consists of lamp annunciators connected in multiple through a keyboard controlled by the telephone P.B.X. operator.

Public telephone conduits run to outlets in each room and a jack is installed so that a patient desiring outside communication service can secure it by having the nurse insert in the jack the plug at the end of the portable telephone cord.

A selective ringing, selective talking interphone system should be installed for use between kitchen, office, engine room, garage, and other stations where employees are located and audible signals are not objectionable.

The operating rooms should have at least 1,500 watts provided in ceiling outlets and these also should have a stand-by storage battery system. If there be a number of operating rooms, or the run from battery to operating room is over 50 ft., it is more eco-

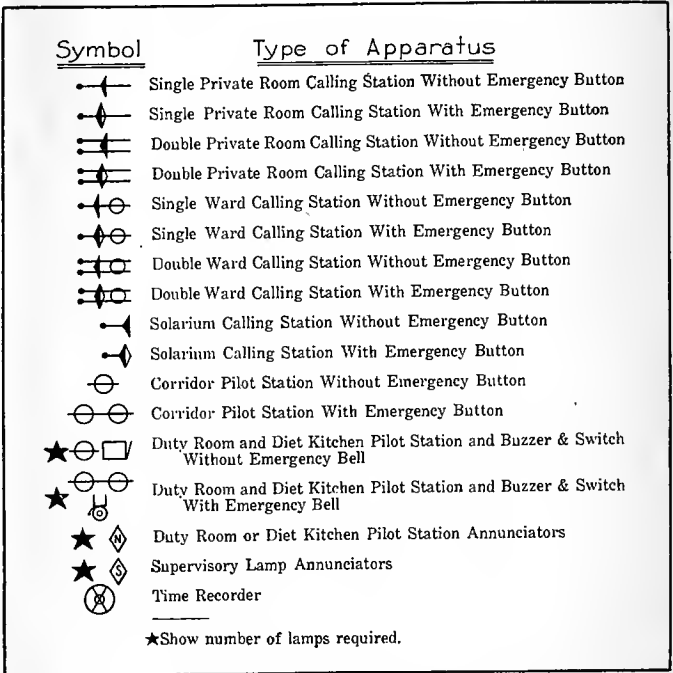
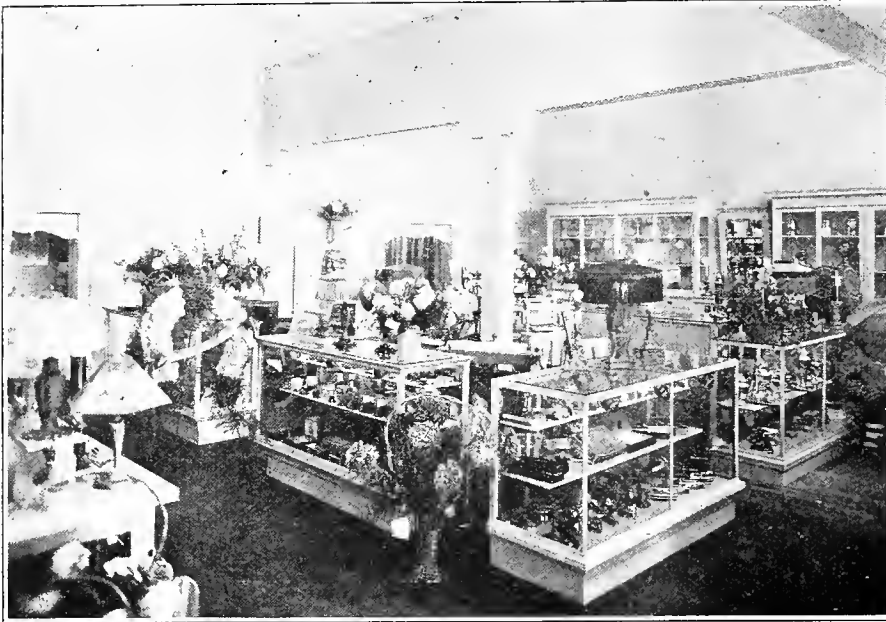


Fig. 3.

double throw automatic relay switch system can be used on these particular circuits and thereby save a duplicate wiring system as would be the case for the 10 or 32-volt systems.



Interior of H. W. Jacobs' new store at Santa Rosa. Note that the major part of the merchandise is under glass for better display. The light finish of the woodwork adds to the tone of the interior and furnishes a pleasing atmosphere for the surrounding appliances.

Santa Rosa Dealer Holds Unusual Dedication of New Store

On Nov. 10 H. W. Jacobs, who has been an electrical contractor-dealer in Santa Rosa for several years, held open house in dedication of his new quarters. The former store has been more than doubled in size and has been completely rebuilt. The interior fixtures and finish have been specially designed and built and give a very pleasing effect. The general color scheme employed is French gray and fixtures and finish harmonize perfectly. In the newly constructed show cases dark colored velvet is used to offset the highly polished appliances and the display effect is excellent. The store arrangement is such that it may be handled by the reduced sales force necessary during lunch periods without inconvenience to the customer. All merchandise is in full view as all show and wall cases have glass fronts. The sales possibilities are thereby greatly increased and the attention of customers is well taken up during any short waiting interval.

The opening of the new store was advertised in the daily papers for some days in advance and the attendance was extremely gratifying. Many people came from several miles out to greet the proprietor and to see his new store. Beautiful floral decorations, the gift of manufacturers, jobbers and customers, were displayed throughout the store and gave added attraction. Through the cooperation of the Pacific Gas and Electric Company and the Western Electric Company, an electric cooking demonstration was made a feature of the opening. Miss Marion R. Pollard, home service representative of the Pacific Gas and Electric Company, Santa Rosa, prepared roast lamb, hot biscuits and cakes and these were served by her assistant. Mrs. Lanning, of the Western Electric Company's staff, also assisted on the Western Electric Crawford range and poured coffee made in Manning-Bowman percolators. Many manufacturers' and jobbers' representatives visited the store during the day and complimented Mr. Jacobs on his progress.

A feature of the new store is the window display made possible by the newly constructed show windows. These all have a false floor built in so that



H. W. Jacobs standing in the doorway of his new store at Santa Rosa. "Heinie" Jacobs has been a conspicuous figure in the electrical business of the Sonoma Valley for several years.

the small electrical devices such as percolators, toasters, irons, heating pads, etc., may be displayed in such fashion as to readily attract the attention of

passers-by. The illumination of the store and of the windows is well thought out and executed. In the windows National X-Ray reflectors are used and are arranged in several banks, each using different color screens so that it is possible to obtain any desired lighting effect. Power circuits are wired into the store in order that a display of domestic electric heating equipment may be had. Wesix electric heaters are connected up for demonstration.

This means of exploiting a new store offers many advantages to dealers in that the customer or prospect is brought to the premises and not only is impressed by the surroundings and the merchandise display but is, by his visit to the store, placed in an environment much more favorable for the making of sales.

Public Market to Have Electric Appliance Display

The new Sacramento public market will take cognizance of the growing use of electrical appliances in the home and will have a special department for the display and sale of such equipment. This department will be under the management of Hendricks & Hendricks and will occupy one of the best locations in the building. A complete stock of household electrical devices will be carried and will include washers, irons, toasters, vacuum cleaners, lamps, etc. This is a new department for public markets and serves to show the growing importance, as a retail merchandising feature, of electrical home appliances.

National Electrical Code Ready for Distribution

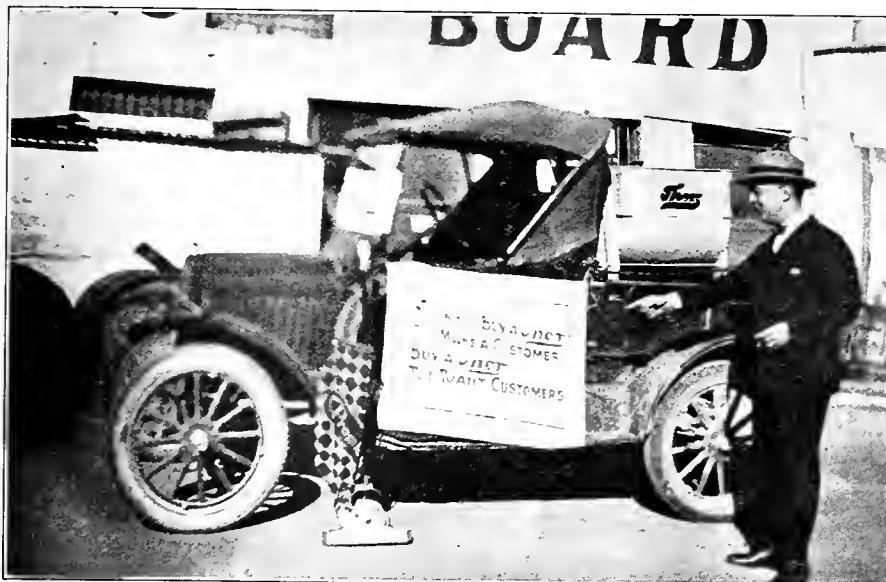
The Board of Fire Underwriters of the Pacific has recently announced that copies of the new edition of the National Electrical Code have been received at the San Francisco headquarters of that association and that copies are now ready for distribution.

Copies may be had upon application to the Board of Fire Underwriters of the Pacific, Merchants Exchange Building, California Street, San Francisco, Calif.

American Di-Electrics, Ltd., New York, N. Y., has recently published price list No. 123. The booklet also acts as a catalog as it gives a brief description of the principal electrical insulating varnishes and compounds manufactured by the concern.



Exterior of H. W. Jacobs' new electrical store in Santa Rosa. Note the false floors in the windows for the display of small appliances. The valance at the window tops adds to the beauty of display. The double entrance permits of an unusual amount of show window space and adds to the general attractiveness of the whole store.



The mighty fliv also helped in the sales campaign. Salesmen carried a washer and a cleaner and thereby had samples at hand for demonstration whenever a prospect's interest was aroused. The signs on the side of the car were a part of the advertising scheme employed.

Los Gatos Dealer Holds Successful Appliance Sales Campaign

Dealers everywhere are devoting special attention to those electric appliances which lighten labor and which take the burden out of housework. Special campaigns are often put on with commendable results. Often, however, these campaigns are conducted without a definite goal and are merely a slight extra sales effort.

When Frank Wilson, of the A. W. Templeman hardware store, Los Gatos, Calif., decided to stage a washer and vacuum cleaner campaign he first set for himself a definite quota of 50 washers and 50 vacuum cleaners to be sold within two months. This is indeed an ambitious quota for a city the size of Los Gatos but Mr. Wilson felt confident he could make it. His first step was the selection of the equipment to be sold and he decided on Thor washers and Premier cleaners. His next move was to plan an advertising campaign and in this he used many different mediums.

The first advertising was in the newspapers which contained announcements of store and home demonstrations. He then distributed hand bills to all homes that could possibly be prospects for either of the two devices included in

the campaign and followed this distribution with lantern slides at all of the local theaters. A big display in front of the store tied in with all the other forms of advertising and served to draw people to the store where the clerks, who had been specially trained for the campaign, could demonstrate the devices. In addition to other advertising Mr. Wilson had signs painted and fastened to the sides of the firm's cars and wherever the cars went the campaign was thus advertised. The results of the campaign and the possibilities of such effort may best be expressed by the fact that in two days the sales amounted to seven machines.

Domestic Heating Load Increases in Richmond Campaign

Last July George N. Rooker, the manager of the Richmond division of the Western States Gas & Electric Company, decided to establish a new business department in his division with the range, water and air heating load as the main factors of this department. Frank E. Cronan was put in charge of this department and a campaign for new business of this type was opened.

The first item for creating interest was the opening of an electric home. Through the cooperation of a local

contractor-builder, the local furniture and electrical dealers, a new house was fitted up with full electrical equipment and the public was invited to visit and inspect this house. Immediately following this a practical demonstration of Hotpoint-Hughes electric ranges was staged in the office of the company. This, with the interest that had been created before, resulted in the sale of over forty ranges and an equal number of water and air heaters.

The interest aroused by both of these items has carried with it a return that has been highly profitable. Two large apartment houses have installed complete electrical equipment even to radio plugs in each apartment. Several completely electrical homes have been built and many more are contemplated. Six large business houses have installed electric heat in their store and office rooms. One new church building has installed electric equipment to the amount of 38 kw. In addition to this the individual sales of ranges and water heaters have been very gratifying.

The company has just launched a second campaign, the basis of which will be a guessing contest with an automatic water heater fully installed as a prize. Following this, one of the local newspapers will conduct a free electrical cooking school under the supervision of Miss Bernice Lowen of Chicago.

The company has as its goal the placing of fifty ranges between the opening of the campaign on Nov. 15 and the first of the year. From the present outlook it is believed that this figure may be exceeded. Since July over 600 kw. in range, water and air heating load have been contracted for.



Effective display of appliances was of material aid in the sales campaign put on by A. W. Templeman. By keeping washers and cleaners in the store entrance attention was drawn to the devices themselves and excellent tie-in with all forms of advertising was afforded.



These men are not "nuts" although they might be called "nutty" as they are interested in walnuts and other varieties. The happy smile which each wears is prompted by the successful performance of a Wcsix electrical dehydrator which has been installed and tried out under the combined direction of (left to right) Dr. Bachelor, of the California Walnut Growers' Association, Arthur Kercher, electrical engineer, Adolph Strauch, electric heating engineer, and Professor Christie, of the Department of Agriculture of the University of California.

JOBBER, DEALER AND SALES AGENT



Making Customers Out of Advertisement Readers

Well Directed Advertising Copy and Special Service Features
Aid in Increasing Business of Merchandiser

To secure a volume of business, at the present time, it is necessary for the dealer to first advertise to get the prospective customer into his store and must then give the customer good service to insure that he will return to that particular establishment when in need of similar articles. Advertising, the activity which comes first in the steps that are taken by the dealer in an effort to increase his sales, has been found to be a factor which can be of aid in any time of the year.

Special campaigns, promoted at any time, have been found to be extremely effective in developing a demand for the dealer's merchandise. The timeliness of the advertising campaign must of course be considered as must the character of the copy that is used to advertise the products.

From the first of December until midnight of the twenty-fourth of the month, the time is particularly suited to the advertising of merchandise that is such that it would be acceptable as a gift. Thus the electrical merchant has the appeal which he should use at the time, almost prescribed for him. If he will, through his advertising, show that his merchandise is particularly suitable for gift purposes, the question of timeliness, as far as the advertising goes, will be solved. The next problem, that of presenting copy which is of such a character that it will instill the desire for possession in the mind of the reader to such an amount that he will come to the advertiser's place of business to purchase the product, must of course be solved by each individual merchandiser.

While the character and general appearance of all electrical dealers' advertisements are primarily much the same, there are certain factors which necessitate the use of individual copy by each dealer. In the first place, two dealers, operating in the same locality, are of course careful to avoid the use of identical advertisements. In such a case, it is improbable that the two merchandisers would be handling the same lines and this would also tend to change the character of the advertisement. Electrical dealers, serving two different cities, despite the fact that they are not in direct competition, will not use the same advertising for the reason that their customers are of a different character. Advertisements that may produce excellent results in Los Angeles, Calif., may be totally ineffective in Spokane, Wash., not because the prospective customer in the California city

differs from the northern man in any particular way, but because in the majority of cases, local conditions will have a large part to play in the forming of an opinion, in the mind of the prospect, as to whether or not he should purchase the advertised article.

The local dealer can, by analyzing his own market, decide what appeal is the most suited to his particular territory. Definite rules cannot be laid down

in a wider territory than that which is reached by the dealer and the calculation has been made that a certain number of readers will not be completely or even halfway sold by the advertisements. These advertisements are in many cases run in a number of the larger cities, and often no change is made in the character of the copy to make the allowances for local conditions. The effort is made, rather, to reach the mass of the readers and no attempt is made to address any particular group. In addition, no plan is made to attract the prospect to any particular electrical dealer, the desire being only to sell the particular make of device that is advertised. There are cases, however, in which the dealer will find that the advertising of the jobber, distributor or of the manufacturer will be of assistance in designing his own advertisements. The appeal made by one of these agencies may be found to be particularly suited to the dealer's territory, despite the fact that it was not directed at it.

The dealer can also secure benefit from the advertising of the agencies in the electrical industry, that sell to him, by tying his advertising in with that featured by the jobber, agent or manufacturer. At the present time, most of the advertising copy is directly pointed toward the Christmas shopper. The electrical dealer, by the use of copy designed to reach his own customers, can no doubt increase his sales considerably if the advertisements are run simultaneously with those of the distributing factors of the industry.

In regard to the service that the electrical dealer must give his customers to insure that they will be "repeat customers," the average electrical dealer knows and gives the customer the attention that is usually called "service." Salesmen are advised to be courteous, obliging and deferential to the customer's desires. Free trial offers are made on certain appliances and devices and in many cases instruction as to the best methods of using the equipment is given to the purchaser without cost.

The Christmas buying period offers excellent opportunities to the dealer to show his customers that he is properly equipped to handle their needs. Salesmen can be instructed to familiarize themselves with all of the devices that are particularly suitable for gifts and can in this way be of great aid to the purchaser who is undecided as to just what article to purchase for certain members of the family. Cards suitable for attaching to gifts will be found handy by last-minute-shoppers and special delivery features will also be appreciated at this time.

Christmas advertisements of this character may serve to give dealers an idea which they can incorporate in their advertising. In addition the distributor's advertisement will aid in reducing sales resistance.

which would be suitable for every electrical dealer. Local conditions, the character of the dealer's relations with his customers and prospects, the price of the article, the character of the merchandise and many other factors must be taken into consideration before any decision can be made as to what is the best type of advertising to employ.

The advertising of manufacturers' agents, distributors and jobbers, that is placed in newspapers, is governed by other factors. These advertisements are designed to attract the attention of the greatest possible number of people

Three Direct-by-Mail Ideas that Sell Merchandise

The Farmer, the Possible Credit Customer and the Old Patron
Can Be Reached by Using One of These Pieces

By JOHN T. BARTLETT

Success with an electrical direct advertising mailing comes as a result of a combination of favorable factors. The group of mailings described here is attractive because each is one for which a local opportunity to use quite often arises. The merit of one in particular is inexpensiveness in covering large lists; another gets high returns from small lists; and all three have excellent chances of securing business.

Number 1 is a mailing with which a Denver radio dealer has recently reached hundreds of radio fans on farms remote from town. On the mechanical side, it has a number of things to commend it. Light cardboard stock, cut to make a piece $7 \times 7\frac{1}{2}$ in., was used. This was folded once for mailing, and one of the half-sides then used for the address side. The 1-cent stamp which covered postage was stuck over the long two edges of the folded piece, holding it together.

The total cost of mailing using this basis can readily be kept below 3 cents each. As the electrical dealer will realize this is very reasonable indeed. If stock of an unusual color, say pink or green, is used, the attention getting power of the piece will be high.

The radio dealer, made to farm radio fans the appeal the mail order houses do—price. It is not necessary, absolutely, to use this appeal, but to a farm list the price appeal usually gets a response that no other appeal does. For the store which has a line it wishes to close out, this makes a good mailing where the percentage of returns from a list cannot be expected to be high, and a mailing which reaches the maximum number at minimum cost is required.

Number 2 is a letter to get new charge customers. There are a great many people entitled to credit, who have it at stores in certain trades, who hesitate to ask for it in the store where purchase is only occasional. Being grilled for credit information is a possibility they won't risk. So it happens that in a great many places this is one of the very easiest mailings to put across. Many electrical stores regularly grant credit terms on washers, cleaners and other large purchases, but make no bid for the credit patronage of the regular electrical shopper who buys an appliance, or lamps, or batteries for the doorbell.

Get a list of people well rated by the local credit association for ability to pay and record for paying. If you have no credit association, you will have to get up the list in other ways. Maybe a fellow merchant in a non-competing line will give you a list of his charge customers found desirable. Or a list can be made up of people of recognized financial standing.

The letter to this list should inform the recipient that salespeople have been instructed to sell her on a charge basis, and she can come in and buy thus with no formality whatever. Then it should give reasons why the advertiser's store is a good one at which to buy, giving

the arguments of convenience to the public, wide selection, fair prices, etc.

What will make such a letter pull is the tendered charge privilege. If the dealer feels like making an additional incentive to get desirable new customers into the store, he can offer a 10 per cent discount on the initial purchase. Without additional cost, envelope stuffers supplied by manufacturers can be used.

A letter of this sort should go under 2 cents postage. The letter within should be made as personal as possible—the prospect's name and address filled in, a genuine signature at the foot of the letter.

How much will this letter cost? That all depends on quality of materials and workmanship used, and how much outside labor the electrical store employs. Recently, an electrical man put the letter out, on a mailing of several thousand, at a per letter cost just a fraction over 3 cents. He used government envelopes and did not charge for labor performed by store employees. This was an exceptionally low figure. If a store gets this mailing out for 5 cents a letter, it should be satisfied.

Letter Number 3. The easiest people for any successful store to sell to are its old customers. Cold prospects, the people who have never been inside the store, are the hardest. The novice in direct mail advertising seldom recognizes or realizes this condition, and shoots at his hardest market—a cold list.

This letter is one which gets from old customers new business. The writer has acquired data on it repeatedly, and seldom finds evidence of a negative nature.

A "sale" has been planned. Maybe a manufacturer has made possible unusual terms on a given number of washing machines or ironers. Maybe the dealer is going to put on a sale of percolators—a limited number—with an allowance of a dollar for the old percolator turned in. Maybe the "sale" has bargain appeal offerings in several departments—odds and ends in the radio section, fixtures getting out of style, and so on, are being cleaned up. At any rate, the sale is of such a nature that limited quantity is a characteristic.

What the electrical dealer does is to get together a list of all old customers. Ten days in advance of the date he has set for a general sale, he writes a letter to these old customers using a form letter. He tells what the sale is to be, how attractive it is, and informs the old customer that a "private sale" on the same goods is to be held for a week prior to the general sale. During this week, the old customer can take her pick at sales-week terms.

Few things so appeal to the vanity of a shopper as the feeling that she is favored by the management, that is, gets "inside" treatment. This mailing capitalizes on this characteristic of human nature. The letter should have filled in name and address, and be signed by the dealer if practicable. A

signature by the clerk, whose personal customer the recipient is, may be better still.

In conclusion, the dealer should consider one or two principles of results-judging. When does advertising pay? The first point to remember is that advertising accomplishes for the retailer two things: First, it sells goods in greater or less quantity directly. Secondly, it obtains for the advertiser new customers. In some cases direct mail campaigns "pay out" directly in the amount of immediate sales they make. Much more often, however—and this holds true of all advertising, both retail and by manufacturer—advertising "pays out" not on immediate sales, but in customers secured.

In other words, immediate sales made are not the real test necessarily. The number of sales may be small, but if a good proportion of those who come in and buy, continue to come in and buy, the total of sales properly to the credit of the advertising that secured the customer grows bigger like a snowball.

So be sure to consider, besides immediate sales, how well you are buying permanent customers. If a good proportion remain as customers, very small initial sales can readily "pay out."

Colored Lighting Aids Realtor in Renting Store Room

That the power of light has been appreciated by many persons outside of the electrical industry, has again been proved in San Francisco. In one of the residential sections of the city a real estate agent had the occasion to rent a store room that was adjacent to a moving picture theater.

The store room had stood vacant for some time and the agent had been unable to rent it despite the fact that considerable effort was exerted in endeavoring to do so. Signs were placed in the windows that fronted the street and the other customary aids employed by agents were used.

The public failed to take any notice of the vacancy and no applications were received by the agent or owner. Then the agent decided to illuminate the store at night in order that persons might be attracted in that way.

In lighting the store an extensive installation of colored lights was made. Red, orange, yellow and blue color screens were placed over the light sources in the interior of the store room. As the display window at the front of the store occupied the entire space, all of the lighting effects that were secured in the room were visible from the street. The exterior of the store was not lighted at all and the vivid contrast of the colorfully lighted interior to the dark street was most marked.

According to eye-witnesses, the store, after being so lighted, attracted a large amount of attention. Crowds coming to and from the moving picture theater gathered in front of the window and peered into the store room. The realtor's sign, located in the store room, served to notify interested persons of the reasons for so illuminating the store. The location was rented shortly after the experiment was made.

Increasing the Installation Nine Hundred Per Cent

Southern California Home Owner Electrifies Home Completely When Told of Advantages of the Equipment

Just what can be done along the line of developing a demand for complete electrical installation in the modern home was recently shown by the S.&H. Service Electric Company, Inc., of Alhambra, Calif. This firm has specialized in the installing of complete electrical equipment in the small-sized southern California city and has met with much success in its efforts to increase the electrification of the homes that are being built in the vicinity of Alhambra.

Some time ago, G. B. Gillson of Covina, a town about 15 miles from Alhambra, made known his intention to erect a modern home in the vicinity of Covina. Mr. Gillson's original intention was to light the house electrically and to cook and heat with fuel oil. The reason for using fuel oil was that gas was not available for use. According to the plans and specifications as originally drawn, the electrical installation would have cost in the neighborhood of \$400. As this sum covered only the costs of installing wiring for illuminating purposes it can be seen that the electrical equipment as far as the lighting of the home was concerned, had not been stinted.

Before construction started on the home, R. E. Heerman, president and manager of the S.&H. Service Electric Company, Inc., got in touch with Mr. Gillson and because he was able to show the builder of the new home that if he were to make a complete installation of electrical equipment in his home he would be making it more modern, more easy to live in and enjoy, the electrical man sold the idea to Mr. Gillson. As a result of Mr. Heerman's efforts, the new home in Covina was fitted with electrical equipment, the bill for which totaled approximately \$3,500.

Everything that could be operated by electricity was provided for in the new home. Cooking is done with a Hotpoint-Hughes electric range and water is heated with Scheeline automatic water heaters, one being installed in each wing of the house. An electric refrigerator is used to preserve the household's food. Recesses in the walls in each room in the house provide locations for Hulbert electric steam radiators that heat the home. Because it is quite warm in Covina in the summer time some provisions had to be made for cooling the house at that time of the year. Electric fans have been supplied to fill this need and convenience outlets have been located in a variety of places in order that members of the household can use the fans wherever they are needed. The laundry is of course completely equipped with electrical devices.

The home is truly an electric one and one which should be operated with a minimum of labor. Mr. Gillson was sold on the practicability of electrical heating and cooking before the equipment was installed and this no doubt was largely responsible for the complete installation that he ordered for his home. Since he has moved in, his confidence in electrical equipment has been increased because of the satisfactory

way that the modern devices have been serving his household.

Not every nian who is building a new house is a prospect for such an installation as the one that was made in Mr. Gillson's home, but in the majority of cases the electrical contractor, by co-operating with the owner and architect, can increase the installation considerably. The S.&H. Service Electric Company, Inc., through the work of Mr. Heerman was able, however, to increase the installation from one calling for work and equipment that would have cost \$400 to one that put \$3,500 in the cash register of the company and gave complete satisfaction to the new home owner.

CHINESE PHILOSOPHY UP-TO-DATE

By JOE OSIER

The High Hip Tong hall, filled to overflowing with rickshaw men, laundrymen, chop suey chefs and tongmen of all ages and sizes was in a bedlam and—

The anvil chorus was being played on a thousand Chinese fiddles when—

Too Fat, chief of the High Hipppers, flung himself to the top of the speaker's table, grabbed a handful of gavels and banged for order.

Then he said: "Fellow heathen, yes-men and no-can-doers; I beseech you calm down lest I call the cops and have you crowned.



The Gentle Game of Boomerang!

"The time has come in the history of our tong when we must stick together or be stuck separately. And, remember, the Chinese New Year is but around the corner when we must pay our debts or—

"Quit cluttering up the gangways.

"Working together we can save our precious hides—working separately we

stand the same chance as an apple in an orphan asylum."

"Remember this, fellow highbinders: 'He who spits blood at another, first defiles his own mouth.'"

After saying which, Too Fat slipped his queue in his pistol pocket, along with a quart of Chinese gin, and made tracks toward his favorite joss house.

But the idea Too Fat unburdened himself of, fell on fertile soil and it grew and bloomed and blossomed and bore fruit and—

So, today, in this time of hammering and knocking and back-biting and vilifying—

I take the liberty of calling my reader's attention to Too Fat's famed philosophy:

"He who spits blood at another, first defiles his own mouth."

For your own sake and for the sake of your business, hold your finger on this place in the column, lean back in your chair and think back over the past few days.

Have you been guilty of knocking your competitor? Have you made light of his efforts and hammered the merchandise he is carrying?

Have you boosted the man up the street, engaged in the same line, or have you anvil-chorused him from the naughty word to breakfast?

Come clean, now!

And, now that you have confessed, why not take an oath never to be guilty of such an offense again and—

While you are swearing, swear by the sun, moon and stars and the falling German mark that—

From now on, your first, middle and last name shall be Boost Everybody—because—

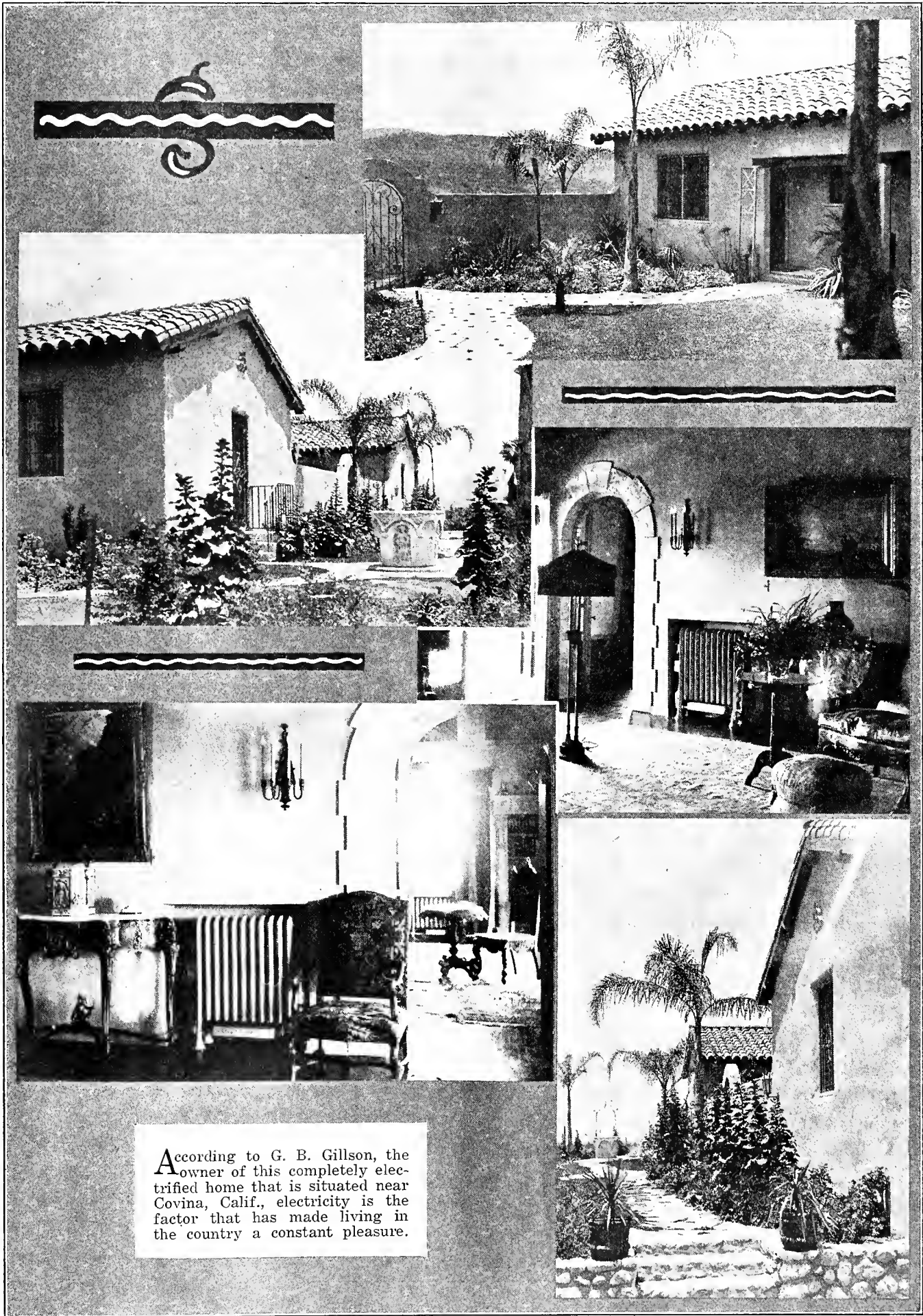
When everyman in the electrical game decides to lay aside the mallet and pick up the megaphone—

The industry will attain that place which it so justly deserves and—

That place is the Top o' the Heap.



The animated advertising shows of the local advertising clubs offer exceptional opportunities to the electrical merchandiser to present his message. The Washington Water Power Company of Spokane, Wash., was responsible for the appearance of Dorothy Jean Logan and Elizabeth Bryan representing "Princess Eureka" and "Prince Thor" at one of these shows held by the Spokane Advertising Club.



According to G. B. Gillson, the owner of this completely electrified home that is situated near Covina, Calif., electricity is the factor that has made living in the country a constant pleasure.

Are Contractors Making a Profit in Wiring Jobs?

Analysis of Books of Sixteen Contractors and Dealers Shows
That These Men Are Not Making a Fair Margin of Profit

One of the most evident needs of the electrical industry today is accurate cost accounting. Due to many reasons this feature of the business has not received the consideration which it should have. F. V. Mitchell is a certified public accountant who has devoted special attention to the affairs of electrical contractors and dealers. He has attended several of the conventions of the California State Association of Electrical Contractors and Dealers and has addressed these meetings on the subject of proper accounting and accounting methods. He has been a worker for the improvement of financial conditions among the contracting members of the electrical trade and always produces figures to substantiate his remarks. The following is an extract from his address delivered at the Sacramento meeting of the California State Association of Electrical Contractors and Dealers on Oct. 27.

"I am very glad of this opportunity to address you again regarding the vital points in your industry upon which I touched before your Donner Lake convention. Since that time I have been digging down even deeper into your troubles and have also covered a very wide territory embracing practically the whole of northern and central California. The information and results obtained from this extensive work have borne out in full the statements I made at your June meeting and it is with this idea in mind that I have prepared a combined profit and loss statement of 16 electrical contractors and dealers comprising a truly representative lot over the northern and central parts of this state.

"This statement of operation, covering the period of six months from Jan. 1, 1923, to June 30, 1923, shows total sales for all sixteen firms of \$408,073.89 with material and labor costs of \$298,849.30, leaving a gross profit of \$109,224.59, from which we must deduct an overhead expense of \$97,826.73, leaving a net profit on this large volume of business of only \$11,397.86 which is just 2½ per cent on the total sales. There is an average salary of only \$200 per month included in the above overhead for proprietors, which means that these sixteen individuals have worked for less money than most of the men in their employ and all they have in addition to this is an average book profit of \$712.37 each for the six months business.

"In my address at your last meeting I hazarded an opinion that the average percentage of overhead expense to material and labor costs was in the neighborhood of 30 per cent. As it works out in actual figures, however, sixteen representative contractor-dealers show an average of 32¼ per cent. In other words, this percentage had to be added to the material and labor costs first before they could break even and as the figures show they only added an average of 35 per cent, hence the small net profit of only 2½ per cent, and if it were not for the fact that this statement includes one with a net profit of 11 per cent and another with 8½ per cent the average would have dropped down as low as 1 per cent net. The

fact that the latter two mentioned can make a fair percentage of net profit on their work with no better general conditions surrounding is certain proof to me that it can be done as a whole with a large injection of the "Live and Let Live" principle, but it will never be done with the vicious and reckless competitive tactics practiced in your industry today.

"I recall, at the June meeting I was asked if I had ever done any accounting work in other contracting lines, at which time I had not to any extent. However, recently I have had the opportunity to install an accounting system in another sub-contracting line, the class of which I do not care at this time to name, and find that although competition is very keen, yet it is intelligent, owing to the fact that a certain percentage is first added to the material and labor to cover overhead fully and then a further percentage is added to insure a fair margin of net profit on the work. On yearly sales of \$160,000, this firm showed a net profit of \$24,000, or 15 per cent. That is just a sample of what is being done in another sub-contracting line and I certainly cannot see why the same thing cannot be done in the electrical line more generally than it is.

"You can readily see from this illustration that if these sixteen contractors and their competitors had known their correct percentage of overhead to their material and labor costs they would have first added 32¼ per cent to cover same and then should have added at least 11 per cent to assure a net profit of 10 per cent on their work, which is certainly small enough.

"Any contractor-dealer who is under the impression that a fair margin of net profit can be made by a total addition of anything less than 50 per cent is laboring under a distinct illusion and the sooner he becomes apprized of that fact, the better for himself and the industry as a whole. And while on this subject let me say, that the straight contractor taking large jobs at 15 per cent added is riding a most direct road

to disaster as I have had occasion to see with my own eyes that the liabilities pile up larger than the assets under that method. A straight contractor allowing himself only a fair salary could not operate on an overhead of much less than \$10,000 per year and we must keep in mind the fact that it takes \$70,000 worth of jobs at the ridiculously low figure of 15 per cent added to barely cover this overhead."

Work of Persian Poet Unearthed by Subway Diggers

Through the columns of "Illumination Notes" the Westinghouse Lamp Company has recently published a poem entitled "A Mazda Sonnet." According to the publishers of the piece, the author, O. b'Hoy Let S'go, is a long forgotten Persian writer of verse whose works have recently been unearthed in the digging of the Kashmir subway. The verses were translated by Ki Lo Watt, a descendant of the Soroatrian god, Ashura Mazda.

The work when translated reads as follows:

A MAZDA SONNET

By O. b'Hoy Let S'go.

You've lost your hair? Ah, that's too bad!
But after all, wigs may be had
To cover o'er the parking place of brains,
Restoratives may sprout it out
You'll work and play, and laugh and shout
And baldness brings no consequential pains!

You've lost your teeth? Now what's to do!
But be consoled—you still can chew
With false ones that a clever dentist makes.
Your food will taste as good today,
And bite you can, and smile and may,—
Camouflage molars have no pains nor aches!

Your hearing's bum? Well that is tough,
Yet you can still hear well enough
Accousticons are substitutes for ears.
You'll like the movies just as much
Tho' somewhat deaf, you're not in dutch
Your wife can't argue with you, calm your fears.

You've lost your sight? That's hell to pay!
In darkness you are doomed to stay
You'll never see the sunset in the skies!
No substitute for sight is known,
Though you a million dollars own,
Surgeons can't help your vision with glass eyes!

List to my tale, both young and old—
Your eyes are worth more than pure gold,
Once blind, your days will all be turned to night!
Let Westinghouse preserve your sight,
Be sure your lighting system's right,
And all your life be glad, with Mazda light!



By cooperating with the Perkins Electric, Ltd., the distributor for the products of Canadian Brandes, Ltd., and the Canadian Westinghouse Company, Ltd., this display was presented at the National Exhibition held in Toronto recently.

These Electrical Cooperative Campaign Christmas Cards will help You this year

The Electric Heater

gives immediate
cheerful, radiant heat

Give Electrical Christmas Gifts



It is Easy to
Keep your Home Clean
with an
Electric Vacuum Cleaner

Give Electrical Christmas Gifts



An Electrical Percolator

makes superior coffee
right at the table

Give Electrical Christmas Gifts



Light the Christmas Tree with Electric Lights

and avoid the
danger of candles

Give Electrical Christmas Gifts



An Electric Range

is the modern way
of cooking

Give Electrical Christmas Gifts



The Electric Waffle Iron

bakes delicious waffles
at the table

Give Electrical Christmas Gifts



THE ELECTRIC IRON

saves time, fuel
and many steps

Give Electrical Christmas Gifts



Crisp Brown Toast

is made quickly
with the
Electric Toaster
at the table

Give Electrical Christmas Gifts



The Electric Curling Iron

is quick and
convenient

Give Electrical Christmas Gifts



ELECTRIC LAMPS

add comfort,
beauty and cheer
to the home

Give Electrical Christmas Gifts



The Electric Clothes Washer

eliminates hard work
with
less wear on clothes

Give Electrical Christmas Gifts



Delicious Dishes

are temptingly served
from the

Electric Chafing Dish

Give Electrical Christmas Gifts



The Electric Sewing Machine

is easily carried about
and saves backache

Give Electrical Christmas Gifts



A RADIO SET in the home

affords pleasure
and amusement

Give Electrical Christmas Gifts



An Electric Hair Dryer

dries the hair
in a few minutes

Give Electrical Christmas Gifts



The Electric Heating Pad

applies heat to
any part of the body

Give Electrical Christmas Gifts



INDUSTRIAL NEWS



Pit No. 3 Generating Equipment Contracts Are Signed

Contracts for turbines, generating equipment and main switching equipment for Pit No. 3 Power House of the Pacific Gas and Electric Company have recently been awarded. These contracts cover only generating station equipment and amount to approximately a million and a half dollars.

The three turbines that will be installed in the new power house are to be supplied by the Pelton Water Wheel Company of San Francisco. The turbines will be of the vertical type and are designed to be equipped with cast steel runners, babbitted turbine guide bearings and telescopic draft tubes to permit removing the turbine runners without disturbing the generators. The lower butterfly valves will be supplied by the Pelton company. Pressure regulators will be installed of sufficient capacity to bypass 80 per cent of full water.

Three generators which are to have a rated capacity of 27,000 kva. each are to be furnished by the General Electric Company. These will generate at 11,000 volts and will be of the three-phase, 60-cycle type. Direct connected 250-volt exciters will be utilized with one motor and water wheel driven spare. The generators will be constructed with one thrust bearing and two guide bearings, the thrust bearing supporting the entire rotating element.

The 220,000-volt oil switching equipment is to be furnished by the Westinghouse Electric & Manufacturing Company. A single sectionalized bus will be provided, provision being made for oil circuit breakers for the three transformer banks, and for two outgoing lines, as well as for two air-break sectionalizing switches on the bus. Transformers to step the voltage from 11,000 to that required for transmission purposes will be located in the rear of the power house and over the penstock tunnels. There will be three banks of transformers and one spare unit, making ten units in all, each transformer to be of 9,000-kva. capacity, 9 power factor, three-phase, 60-cycle, 220,000 volts, Y connected with the neutral grounded. The transformers will be oil-insulated and water-cooled. This equipment will also be supplied by the Westinghouse company.

The 15,000-volt oil switching equipment for the interior of the power house is to be furnished by the General Electric Company. A complete double bus arrangement will be provided by the 11,000-volt switches which are to be of high capacity and will be installed in concrete compartments and provided with air-break disconnecting switches.

The switchboards will be of the bench type and will be equipped with suitable meters, relays and control switches for the operation of the entire plant.

Paper Manufacturer Is to Erect Hydroelectric Plant

The Crown Willamette Paper Company, Portland, Ore., is planning to erect a dam and hydroelectric plant at Young's River Falls to develop power to be used in connection with the company's log unloading facilities at that point. It is said that in its new plans, the company hopes to eliminate one of the leaks in the profits, and the perplexing problem of the paper industry. This problem is with regard to the small timber. As logging for pulp purposes is conducted at present, all of the smaller timber is wasted.

According to the plan, a dam will be erected at the crest of the falls. This will form a 35-acre pond for water and log storage in the natural basin behind the rocky wall through which the river cuts at the falls. Immediately below the dam will be erected a power house with turbines and generators. Power from this plant will be conveyed to tidewater, where a small cut-up mill and small pulp mill may be erected. The work of clearing the basin above the falls for the lake formed by the dam has recently been completed.

Large Spillway Being Built for Long Lake Power Plant

The second largest spillway in the world is nearing completion at Long Lake, Wash., under the direction of the engineering department of The Washington Water Power Company. The plant is in a narrow gorge of the Spokane River 35 miles west of the city and is considered one of the most difficult accomplishments in modern engineering.

Two units of the plant, developing 45,000 hp., were completed in 1913 and 1915 and the third unit was installed in 1917-18. The new fourth unit will bring the plant to the full capacity of 90,000 hp. for which it was originally constructed. The fourth unit when completed will cost approximately \$462,000, bringing the entire cost of the plant to about \$6,000,000.

Extensive rebuilding, improving and extending present electrical systems during the coming year in Wenatchee Valley, Washington, is planned by the Washington Coast Utilities Company, involving an expenditure of \$40,000. Plans for new work and extensions are being drawn that will cost an additional \$100,000.

Edison Company Plans Explained to California Dealers

One hundred and forty contractors, dealers, jobbers, manufacturers and representatives of the Southern California Edison Company met in the Edison Club Rooms, Los Angeles, Calif., at an informal dinner on the evening of Nov. 13 to discuss plans for stimulating the use of household appliances.

A. W. Childs, manager of the Edison company's commercial department, explained the recent order of the Railroad Commission, which reduces the company's maximum lighting rate from 8 cents to 6.5 cents in southern California. This reduction will make it possible to use domestic appliances and lamp socket devices much more freely without materially increasing the consumer's bills for electric service.

It was stated by Mr. Childs that the Edison company connected 30,000 new domestic consumers in 1922, will connect in excess of 40,000 in 1923 and everything indicates 40,000 new accounts as a minimum for 1924. The plan outlined is to develop this latent business on a large scale, he said.

The Edison company plans to sell certain popular appliances using 500 to 600 watts, retailing them at list prices and cooperating with the dealers in connection with developing the sale of motor driven appliances such as vacuum cleaners, fans, washing machines, ironing machines and the like.

Electrical dealers, jobbers and manufacturers in discussing the plan with the Edison representative, stated that this activity of the Edison company would increase business all down the line. It is generally admitted that the remarkable building program in southern California is creating a tremendous market which to date has not been systematically cultivated.

A similar meeting with dealers in the San Joaquin Valley was held in the Edison Club Rooms in Visalia on Nov. 19 and was attended by forty representatives of electrical dealers in the valley and district managers of the Edison company in that territory.

Contract for the electrical equipment in the proposed new \$1,000,000 sawmill to be erected in Longview, Wash., by the Long-Bell Lumber Company, has been let to the Westinghouse Electric & Manufacturing Company. The contract includes among other equipment, 420 motors ranging from 5 to 500 hp. The mill will be electrically equipped throughout. Contract for a million dollars' worth of sawmill equipment has been let to Filer-Stowell Company, Milwaukee, Wis.

National Commercial Section of N.E.L.A. Holds Meeting

The meeting of the National Commercial Section of the National Electric Light Association held at Salt Lake City, Nov. 21 and 22, was an outstanding success not only from the standpoint of the intense interest in the meeting but also from the large and representative attendance from both the East and the West. The success of this meeting, as well as the one held at Denver earlier this year, indicates the wisdom of holding one meeting a year of the National Commercial Section in a western city where men from the East and the West can meet on a common ground and discuss problems of mutual and national interest.

The group and committee meetings were characterized by unusual interest and enthusiasm as well as by the constructive nature of their work. The interest shown in these meetings indicates that the new plan of delegating the major portion of the detail work to the geographic divisions is stimulating interest in association activities. This in turn is leaving the national section the needed opportunity to work on the larger national problems of the section and at the same time to properly coordinate and correlate the work of the National Commercial Section.

During the meeting the plans of the lighting and power bureaus were presented and the unusual opportunity for developing these classes of business was brought out. At the range meeting of the appliance bureau a plan was proposed by the Northwest geographic division to make a thorough investigation of every phase of the electric range business in conjunction with the Range Committee of the national section.

The executive committee of the National Commercial Section was asked to make the necessary appropriation to carry on this work. At a subsequent meeting the executive committee endorsed the plan and will recommend to the executive committee of the National Association at its next meeting, in December, that the necessary appropriation be made.

At the meeting of the transportation bureau the excellent results accomplished by the transportation bureau of the Pacific Coast Electrical Association since its organization last June were brought out by the Pacific Coast delegates. Since the organization of this bureau thirty-three electric trucks have been sold and the number of live prospects on hand indicates that this number will be greatly exceeded before the end of the year.

A meeting on the question of public relations was held on the spur of the moment and the plan of the greater service bureau of the Southern California Edison Company described by W. H. Fischer of that company was enthusiastically received. The live discussion which followed indicated that men in the industry all over the country are becoming aroused to the seriousness of the municipal ownership menace.

A banquet at the Utah Hotel for the delegates on Thursday evening was tendered by the Rocky Mountain Electrical Cooperative League. On Friday the delegates were taken for an inspection trip to Bingham Canyon where the largest surface copper mine in the world is in operation.

During the meeting the National Commercial Section passed a fitting resolution on the death of L. E. Voyer, assistant sales manager of the Edison Lamp Works in San Francisco and chairman of the Lighting Bureau of the Pacific Coast Electrical Association. The resolution was as follows:

Whereas, We have learned of the passing from earthly activity of our friend and co-worker, L. E. Voyer, chairman of the Lighting Bureau of the Pacific Coast Electrical Association, and

Whereas, Mr. Voyer had contributed generously and effectively of his time and abilities to the advancement of the electrical industry; and moreover, had won the universal friendship and esteem of the members of the electrical industry.

Therefore, Be It Resolved: That the National Commercial Section, National Electric Light Association, unite in an expression of our profound regret at the untimely departure of this valued citizen and associate, and that we tender to the members of his family our sincere sympathy.

Be It Further Resolved: That a copy of this Resolution be incorporated in the minutes of this meeting.

(Signed) A. E. HOLLOWAY.

Adopted Nov. 22, 1923,

Salt Lake City, (Signed) W. H. FISCHER.
Utah.

Western Irrigation Equipment Association Holds Meeting

The regular quarterly meeting of the Western Irrigation Equipment Association was held in the Bellevue Hotel, San Francisco, Calif., on Nov. 17. In the morning the executive committee held its meeting and at two o'clock an open meeting was held. This was presided over by C. A. Utley, chairman, and P. H. Marlette, secretary. C. R. Hunt was chairman of the committee on arrangements.

In the evening a banquet was held at the Palais Royale Cafe and addresses were made by Don C. Ray, manager of the bureau of public relations of the Pacific Gas and Electric Company, San Francisco, and by leading advertising experts.

Power Development Fight May Be Held in Washington

The development of hydroelectric power in the state of Washington promises to be the battleground on which the next state election will be fought, with the possibility of a three-cornered fight looming. Adherents of the plan to allow cities owning hydroelectric plants to sell power outside their respective limits appear to be divided into two groups, each group reported to be gathering around a leader. Opponents to the plan are so far running under cover, and might settle on any one of a number of men rumored to be looking covetously on the governor's office.

Homer T. Bone, an attorney of Tacoma, and Pierce County representative at the last session of the state Legislature, recently announced that he will carry the fight for free sale of power throughout the state.

Mr. Bone introduced into the House at the last session a bill providing for unrestricted sale of current by cities, and fought the bill successfully through the lower branch of the Legislature. The bill failed to get out of the Senate committee, but succeeded in drawing out a substitute bill, known as the Reed bill, after its framer, Mark E. Reed, speaker of the House.

The Reed bill provides for the sale of electric current by municipalities outside their limits, but provides also for a 5 per cent gross earnings tax. Speaker Reed led a determined fight for his bill, arguing that when a city develops a power project to supply its electrical needs, it takes much property from the tax rolls, and succeeded in having the bill passed as a referendum measure. In justice to the remainder of the state, he argued, those cities having power projects should pay into the coffers of the state a certain part of their gross earnings. The Reed bill will go before the state election for the approval or rejection of the voters.

It is admitted by politicians that the Reed and Bone bills are the magnets to which political forces are being drawn for the 1924 fight. Should the private power corporations quietly enter the field, which is predicted, a three corner fight would result, all based on the question of power extension in the state.

Due to the mass of votes centered in cities directly interested in the power sale question, it is believed by politicians that settlement of the question can be made the issue of the coming political campaign. Seattle and Tacoma both have power plants. Seattle soon will inaugurate a new unit of a municipal plant, giving the city a great quantity of additional power; Tacoma is preparing to build a plant to add to its La Grande power supply; Bellingham has acquired a site for a municipal plant; and Aberdeen has in its possession plans for the construction of a project.

Two towers each 250 ft. high will be erected to carry the Skagit current over the University Bridge, Seattle, Wash. This height will permit of clearance of even the highest battleship masts. Two similar towers have already been constructed to carry lines over the West Waterway at Spokane Street, Seattle.



Some of the men that attended the meeting of the National Commercial Section, National Electric Light Association, at Salt Lake City, Utah.

Pacific Coast Electrical Association

Committee Personnel—1923-1924

ACCOUNTING SECTION

A. B. Carpenter, Chairman
E. W. Hodge, Vice-Chairman
J. A. Cannon, P. R. Ferguson
O. L. Moore, C. P. Staal
B. B. Smith, M. F. Wales

Meetings August 27, 1923—St. Francis Hotel, San Francisco

COMMERCIAL SECTION—Executive Committee

A. E. Holloway, Chairman
A. M. Frost, Vice-Chairman
P. P. Pine, Secretary

Frank J. Arrey, Frank Weiss
G. T. Bigelow, E. J. Power
R. C. Bragg, Don C. Ray
J. O. Case, H. C. Rice
H. K. Griffin, H. E. Sandoval
H. C. Goldrick, H. E. Sherman, Jr.
H. J. Jamison, Glenn D. Smith
J. F. Pollard, J. W. Wrenn

POWER BUREAU

H. E. Sandoval, Chairman
R. C. Bragg, Vice-Chairman
H. C. Goldrick, Secretary

SUB-COMMITTEES

Central Station Power in Competition with Fuel Oil Engines
W. C. Johnson, J. H. Cunningham
P. Rhine, A. A. Watson
P. P. Pine, A. C. Cagle
H. H. Fogwell, W. F. Neuman

Industrial Heating

E. J. Cipperry, Chairman
E. A. Wilcox, W. W. Hicks
E. B. Merrick, R. C. Griffin
C. W. Curtis, T. A. Reed
F. O. Stevens, Harry Kennedy

CUSTOMERS SERVICE BUREAU

A. M. Frost, Chairman
Geo. T. Bigelow, Vice-Chairman
Don C. Ray, Secretary

SUB-COMMITTEES

Central Station Activities
W. L. Frost, H. K. Griffin
W. H. Fischer, J. W. Wrenn
R. C. Bragg, Ernest M. Freilson

Allied Industries and Associations

C. B. Kenney, D. E. Harris
C. E. Arbogast, P. M. Alvord
H. C. Goldrick, K. E. Van Kuren

Robt. L. Eltringham

LIGHTING BUREAU

Frank J. Arrey, Chairman
H. E. Sherman, Jr., Vice-Chairman
Frank Weiss, Secretary

SUB-COMMITTEES

Signs
Tracy Simpson, Chairman
Paul D. House, Vice-Chairman
H. K. Griffin, H. H. Allison

Street and Highway Lighting

C. H. P. Dellmann, Chairman
R. H. Monahan, Vice-Chairman
H. H. Allison, O. J. Helvey
Ray Conkisk, H. N. Johnson
H. K. Griffin, C. E. Johnson

Allen G. Jones

Residence Lighting

Clark Baker, Chairman
H. H. Allison, Vice-Chairman
S. H. Anderson, E. P. Markee
E. W. Davis, A. E. Sargison
Ernest Freilson, Walter Price

R. W. Prussia

Industrial Lighting

C. Arbogast, Chairman
S. H. Anderson, C. O. Martin
W. A. Alden, Samuel Russell
Thomas Hunter, C. A. Sanborn
Earl Browne, C. E. Spaulding

Commercial Lighting

H. H. Courtwright, Chairman
S. H. Anderson, Fred Mills
H. H. Allison, David Pence
C. H. P. Dellmann, Frank Smith
Leonard Hobbs, A. L. Spring

Paul White

APPLIANCE BUREAU

H. C. Rice, Chairman
J. W. Wrenn, Vice-Chairman
J. H. Jamison, Secretary

SUB-COMMITTEES

Appliance Sales
H. C. Goldrick, Chairman
J. C. Hobrecht, W. C. Wurfel
H. H. Courtwright, O. S. Clifford
H. L. Miller, Carl Heitbrun
R. E. Heerman, A. H. Nichols
Geo. W. Barker, J. P. Bowden
A. L. Spring, Fred Lance

Geo. T. Bigelow

Commercial Heating

C. L. Stennard, Chairman
H. A. Wilcox, Adolph Strauch
J. C. Douglas, David Reed
P. P. Pine, J. T. Doppa

Ranges and Water Heaters

P. H. Booth, Chairman
O. E. Sholders, H. A. Cram
J. A. McWilliams, Wm. P. Schwartz
Geo. T. Bigelow, B. Y. Gibson
J. W. Wrenn, Milton Henoch
H. K. Griffin, J. T. Doppa

R. C. W. Libbey

TRANSPORTATION BUREAU

E. J. Power, Chairman
J. O. Case, Vice-Chairman
H. K. Griffin, Secretary

SUB-COMMITTEES

Commercial Truck Operation
J. S. Moulton, Chairman
S. B. Shaw, Harry Easterbrook
J. Jerome Canavan, E. A. Hunt
K. L. Oazy, Frank Rettemeyer

Batteries

A. B. Wollaber, Chairman
C. L. McWhorter, C. F. Wakeman
L. F. Becker, O. W. Lillard

Industrial Truck Operation

C. P. Hering, Chairman
E. C. Blodgett, Charles M. Gunn
Ira C. Perrin, P. S. Vail
Charles De Blinn, A. S. Landstrom

Meetings: Commercial Section Executive Committee—Aug. 10, 1923, Los Angeles, California.

Main business—Organization of Committees.

Group Meeting of Bureau and Sub-Committees, including Executive, Fresno, California, October 19th and 20th, 1923.

Main business—Planning the year's work.

EXECUTIVE COMMITTEE

The Executive Committee held its first meeting in Los Angeles on September 21, 1923, its main business being the formulation of the Committee Budgets for the current Administrative Year. Committee Chairmen also attended the meeting and presented their respective Budget applications.

INSURANCE COMMITTEE

R. J. Cantrell, Chairman

MEMBERSHIP COMMITTEE

(Personnel Incomplete)

Samuel H. Taylor, Chairman
R. C. Boyles, Southern California Edison Co., L. A.
H. E. Barden, Southern California Edison Co., L. A.
F. W. Morris, Southern California Edison Co., L. A.
Frank Weiss, Los Angeles Gas & Electric Corp., L. A.
H. E. Sherman, Jr., Illinois Elec. Co., L. A.
H. F. Rea, Pacific States Elec. Co., L. A.
A. B. Vandercook, Western Elec. Co., L. A.
Herbert Dewes, Southern Sierra Power Co., Riverside
W. H. Talbott, San Diego Const. Gas & Electric Co., San Diego
J. M. Buswell, San Joaquin Light & Power Corp., Fresno

PERSONNEL COMMITTEE

R. J. Baker, Chairman
S. C. Haver, T. W. Snell
Herbert Dewes, R. C. Eccles, E. J. Kendall

PUBLIC POLICY COMMITTEE

R. H. Ballard, Chairman
A. Emory Wishon, Paul M. Kee
W. E. Creed, S. Waldo Coleman
Wm. Burhyte, R. S. Mason
H. F. Jackson, H. L. Allen
S. M. Kennedy, George A. Campbell
H. H. Jones, A. B. West
Clenn D. Smith, James B. Black
Samuel Kahn, Mortimer Fleishacker

John B. Miller

PUBLIC RELATIONS SECTION

R. E. Fisher, Chairman
R. E. Smith, Vice-Chairman Southern District
Don C. Ray, Vice-Chairman Northern District

SUB-COMMITTEES

Women's Public Information Bureau
Miss J. Frances Emans
Employees Relations with the Public Bureau
R. A. Balzari

Information Bureau Organization

E. O. Shreve

Public Speaking Bureau

R. W. Duval

Meeting: Los Angeles, California, October 2nd, 1923.

Organization

PUBLICITY COMMITTEE

Al. C. Joy, Chairman
Frederick S. Myrtle, J. E. Barnhill
Chas. Heston Pearson, R. E. Sherman, Jr.
J. C. Hobrecht, Frank P. Boyd
A. E. Holloway, R. D. Brigham
M. W. Scanlon, C. L. Burgess
George C. Tenney, Francis Z. Stone

Meeting: San Francisco, California, Sept. 1st, 1923.

Organization

PURCHASING AND STORES SECTION

C. A. Kelley, Chairman
R. C. Eccles, D. P. Mason
J. L. Gray, H. O. McKee
F. F. Henry, William J. McCullough
John H. Hunt, George C. Robb
L. S. Jones, Frank W. Smith
William Maddock, R. E. Thompson

C. D. Weiss

Meeting: Los Angeles, California, August 3, 1923.

Organization

ORDERING BUREAU

F. F. Henry, Chairman
W. J. McCullough

PURCHASING BUREAU

R. C. Eccles, Chairman
R. E. Thompson, J. C. Kerr, Leigh S. Jones

RECEIVING AND CHECKING BUREAU

Wm. Maddock, Chairman
C. D. Weiss

STORING BUREAU

C. A. Kelley, Chairman
Fred Hendrickson, C. B. Lore

DISBURSEMENTS AND RETURNS BUREAU

H. O. McKee, Chairman
Wm. Maddock, O. M. Simpson

TRANSPORTATION AND LABOR SAVING DEVICES BUREAU

C. D. Weiss, Chairman
D. P. Mason, Andrew Swanson

SUB-COMMITTEES

Maintenance and Operation
J. M. Waincoat, W. J. Schaefer
Authorization and Assignment
J. S. Moulton

Emergency Equipment

W. H. Fairbanks, Basis for Charge—Hours Va. Milage

P. Ducker

F. W. Smith, S. B. Shaw
W. H. Fairbanks, F. C. Roisel

Transportation Accounting and Finance

W. H. Brown, A. E. Lake

Electric Truck

R. A. Johnson, J. S. Moulton, A. Swanson

Insurance, Code of Ethics, Rules for Truck Drivers and Operators

C. D. Weiss

TECHNICAL SECTION

EXECUTIVE COMMITTEE

H. L. Doolittle, Chairman
P. O. Crawford, Vice-Chairman
A. W. Copley, S. J. Laberge
F. O. Dalton, J. Moore
E. R. Northmore, A. Quinn
R. H. Halperny, W. H. Talbott
C. A. Henze, E. E. Valk
J. A. Koonitz, R. J. C. Wood

Meeting: San Francisco, Calif., September 25, 26, 27, 1923

OVERHEAD SYSTEMS BUREAU

R. R. Cowles, Chairman
Carl A. Henze, L. J. Corbett
C. A. MacDonald, Walter Dreyer
M. O. Balser, C. E. Young
P. O. Crawford, H. Steele
R. S. Daniels, George E. Flunn
O. C. Steele, R. B. Ayers
Wm. R. Van Bakkeler, C. L. Lawie
F. W. Snell, E. D. Sherwin
E. K. Gunn, E. Y. Porter
F. W. Paul, L. J. Moore
E. C. Geary, R. E. Cunningham
George Hagar, H. Michener
M. H. Schiapp, N. B. Hinson
M. S. Barnes, G. G. Hamilton
B. H. Hatch, E. N. O'Joly
R. V. Shields, S. L. Case
W. A. Hillebrand, R. F. Conkisk
William Winter

METER BUREAU

C. F. Gilcrest, Chairman
J. C. Albert, W. N. Lindblad
R. S. Daniels, W. H. Talbott
T. E. Knackstedt, T. P. Garrett
W. C. Wells, L. A. Natt
J. J. Skinner, J. G. Monahan
W. C. Smith, C. A. Collins
B. C. Hatch, Lou Johnston
W. C. Knight, W. R. Frampton
F. E. Dillinger, A. S. Price
D. D. Snalley, H. R. Thomas
A. J. Hall, R. C. Jones
O. A. Knopp, J. E. Bridges
G. H. Seale, J. M. Morris
R. Crowell, A. L. Duesberry

Sub-Committees

Meter Testing Periods, G. H. Searle
Meter Testers' Instruction Course, H. R. Thomas
Maximum Demand Meters, A. L. Duesberry
Standardization of Electric Measuring Instruments, W. N. Lindblad

K. V. A. Meters, O. A. Knopp (Chairman)

Theft of Current, W. G. Knight (Chairman)

New Development in Meter Accessories, J. C. Albert (Chairman)

Metering of Parallel of Circuits, W. R. Frampton (Chairman)

Outdoor Metering Equipment, A. S. Price

Standard Testing Facilities, R. Crowell

APPARATUS BUREAU

E. R. Stauffer, Chairman
Ray Martindale, H. T. Sutcliffe
H. H. Cox, W. H. Talbott
C. P. Carman, K. B. Ayers
J. C. Albert, Emory Sherwin
O. W. Wingard, C. E. Schroll
O. C. Steele, R. C. Denny
Paul Ott, H. S. Miner
James F. Pollard, M. L. Crum
T. W. Snell, J. L. Thompson
E. K. Gunn, W. R. Bailey
H. M. Buck, R. M. Peabody
G. E. Armstrong, F. H. Mayer
J. H. Cunningham, J. C. Gaylord
Allen G. Jones, L. L. Dyer
J. A. Koonitz, R. H. Holpenny
C. P. Benham, M. L. Baden
C. A. Riley, Paul H. Yelton
F. R. Knight, F. V. Wright
A. J. Hall, W. P. L'Hommedieu
E. A. Crellin, R. A. Hopkins
B. D. Dexter, W. A. Copley

J. E. Bridges

SAFETY RULES BUREAU

R. H. Cates, Chairman
J. A. Koonitz, E. R. Banks
E. R. Northmore, H. D. Nesbit
N. B. Hinson, N. B. Hinson
C. F. Ginter, W. P. Champion
S. J. Lieberger, F. V. Wright
W. H. Talbott, R. H. Ingersoll
E. J. Crawford, D. E. Morgan
C. F. Gilcrest, H. H. Miller
D. D. Snalley, C. L. Davis

INDUCTIVE CO-ORDINATION BUREAU

J. E. Woodbridge, Chairman
H. H. Cox, H. H. Shields
R. S. Daniels, L. J. Corbett
W. R. Van Bakkeler, Lloyd Henley
T. W. Snell, V. D. Elliott
E. E. Valk, E. Y. Porter
C. F. Benham, P. M. Wentworth
E. R. Northmore, E. D. Sherwin

A. W. Copley

UNDERGROUND SYSTEMS BUREAU

R. C. Powell, Chairman
M. O. Balser, R. R. Cowles
C. H. Jenkins, K. B. Ayers
Raymond Lewelling, D. J. Kelly
Ella J. Wilts, N. B. Hinson
O. C. Miller, Clayton Biggs
George H. Hagar, R. C. Sheppard
Paul E. Chapman, Vinton Smith
H. H. Keeling, George M. Bowman

SUB-COMMITTEES

Low Cost Underground Construction for Light Load Districts
M. O. Balser, Chairman
George E. Hagar, H. H. Keeling
H. B. Hinson, K. B. Ayers

4 K. V. 3-Phase Distribution

H. G. Keeling, Chairman
Clayton Biggs, H. H. Minor

PRIME MOVERS BUREAU

J. C. Rollow, Chairman
C. F. Brown, R. A. Wallingford
E. E. Valk, A. Y. Meydell
R. F. Monges, C. P. Rhine
H. S. Markley, E. Gunn
P. M. Robinson, C. Z. O'Brien
J. C. Rollow, Leo Krasa
R. F. Leefeld, C. R. Stewart
C. E. Strubeck, W. E. Thomson
R. C. Powell, V. E. Johnson
C. H. Delaney, Geo. M. Wells
M. E. Mulvey, F. V. Wright
C. W. Wiggins, C. L. Davis
M. C. Wheland, A. W. Copley
A. D. Murphy, R. A. Hopkins

G. W. Hamilton

HYDRAULIC POWER BUREAU

I. C. Steele, Chairman
E. W. Linquist, H. V. Lutge
R. E. Robertson, Ely C. Hutchinson
C. C. Rable, E. M. Breed
Wayne A. S. Harmon, R. L. Mohr
P. O. Crawford, H. R. Peckham
E. E. Waters, R. M. Peabody
J. F. Pettigrew, Gene B. Heywood
Nelson A. Eckert, A. J. Robertson
R. P. McIntosh, R. C. Booth
S. F. Woodbridge, S. F. Coghlan
C. F. Benham, R. J. C. Wood
C. M. Mordel, George W. Wells
Chester B. McAuley, C. Chava
Morris Levit, R. C. Manford
H. S. Resworth, H. K. Fox
Walter Dreyer, E. A. Quinn
C. DeWitt, R. L. Bryant
George H. Bragg, A. M. Smith

Normal S. Ross

CRISTEL HASTINGS,

Assistant to the Secretary

Long Span to Be Made on Wooden Pole Transmission Line

While figures are not available as to record spans in line construction on wooden structures, the San Diego Consolidated Gas & Electric Company, San Diego, Calif., believes a record will be made when a new 11,000-volt line to Alpine which it is building is completed. On this extension will be erected two spans which will surpass the previous record made by that company on a span over Mission Valley, just north of the city of San Diego.

The Alpine transmission line will have one span of 4,402 ft., followed immediately by another of 3,397 ft., both of which will exceed the 3,069-ft. Mission Valley span. The engineers of the company at first hoped to combine the two spans in one of nearly 8,000 ft. but contour conditions prevented the carrying out of this plan.

The two long spans will be pulled on three-pole structures to a tension estimated at 9,000 lb. Seven-sixteenths extra galvanized special high strength steel strand cable will be used. A difference of elevation of 108 ft. exists between the structures at each end of the first span.

Exceedingly difficult line construction conditions were resourcefully met by the crews of the San Diego Consolidated Gas & Electric Company. An air compressor mounted on a special truck was driven over untracked brush country to within 900 ft. of the center structures of the long spans and air under pressure was piped to the crews digging the pole holes. In solid rock the pneumatic drills aided materially in the speed of sinking pole and anchor holes.

Commissioners Formulate Utah Reclamation Work Plans

At a meeting of the Utah Water Storage Commission with Governor Mabey on Nov. 6 definite plans were formulated for taking immediate action in respect to the reclamation project proposed for Salt Lake and adjoining counties. The plan, which has the hearty endorsement of the county commissioners, the Chamber of Commerce, Presidents' Club of Salt Lake City and other prominent civic organizations, contemplates reclaiming 15,000 acres of valuable land in the eastern part of Salt Lake County as well as other land in Salt Lake and adjoining counties. It is proposed to bring water from the Provo River at a high place along the eastern side of the valley, thereby irrigating soil which has been declared by government experts as very well comparable to the most productive portions of Washington and California.

This is one of several reclamation projects in the counties of Salt Lake, Box Elder, Utah, Weber and Cache, some of which have already been investigated by government engineers to prove their feasibility in order to obtain an appropriation from the United States Reclamation fund, which is advanced for a period of twenty years without interest, on such projects which appear after examination to be the most feasible. A sum of \$10,000 will be raised for investigating the Salt Lake County project, of which the United States Reclamation Service will furnish \$5,000, the Utah Water Storage Commission \$2,500 and the commission-

ers of the counties interested, \$2,500. It is believed that after investigation the project will be found feasible, and that work will proceed in the placing of many thousands of acres of valuable farm land under irrigation.

Contest for Essays on Utility Regulation Announced

The Northwest Electric Light and Power Association, with head offices in Seattle, has announced a scholarship prize, to be competed for by seniors in the high schools of the state, and to be awarded each year for the best essay written by a senior on the topic: "State Regulation of Public Utilities."

The prize, which has the approval of Mrs. Josephine Corliss Preston, head of the state department of public instruction, will be a four-year university course in any of the public or accredited private institutions of higher learning in the state, and will be in the sum of \$250 a year.

Each high school principal will appoint three judges to select the best essay from his school. The closing date for the first contest is April 1, 1924. Announcement of the winner of the state contest will be made April 25. The length of each essay is not to exceed 2,500 words.

The state judges will be Mrs. Preston, E. V. Kuykendall, director of the department of public works; Dr. C. H. Fisher, president of the Bellingham State Normal; Howard T. Lewis, dean of business administration at the University of Washington; and H. C. Cordell, head of the department of business economics at Washington State College.

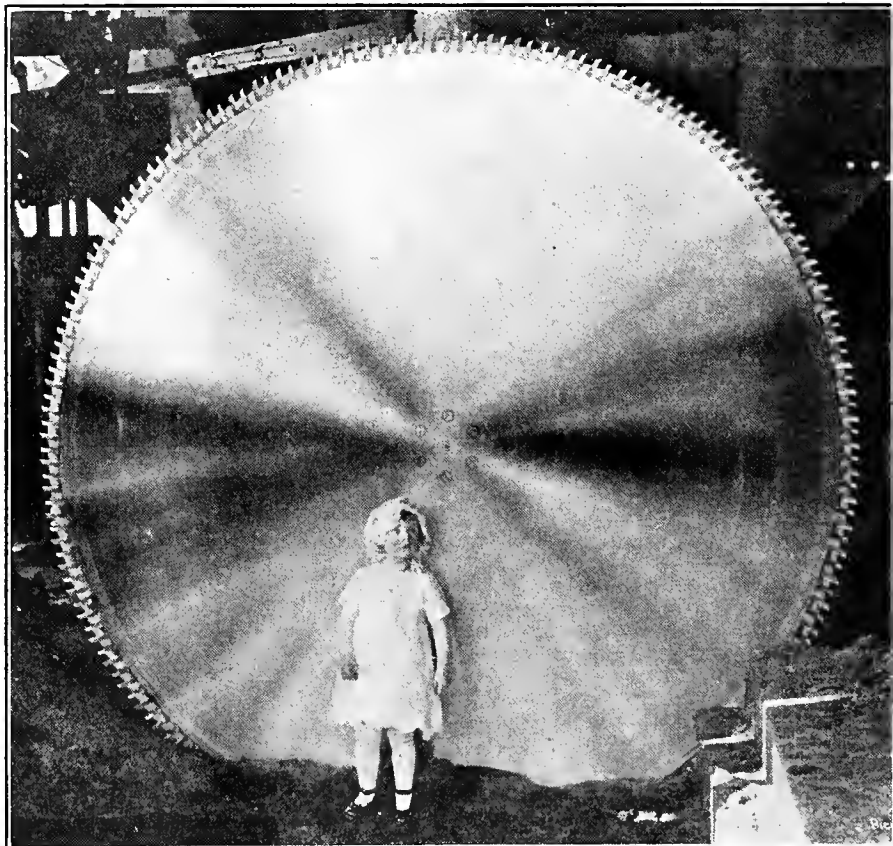
General Electric Company Buys Los Angeles Shop Site

A site, which will be used for housing a service shop and later a warehouse, has been purchased in Los Angeles, Calif., by the General Electric Company. The piece of ground, five acres in area, is located on the southwest corner of Santa Fe Avenue and 52nd Street.

There is now located on the property a two-story Class A building which will be modified and converted into a fully equipped service shop in which all kinds of electrical apparatus will be rebuilt and repaired. It is planned to later construct a large warehouse on a portion of the area that has just been purchased.

According to G. E. Emmons, vice-president of the company in charge of manufacturing, the service shop will be one of the best equipped for rebuilding and repairing electrical apparatus west of the Rocky Mountains. The work of fitting the existing building to the company's needs will start immediately.

An announcement has been made that arrangements have been completed between the Wellman-Seaver-Morgan Company, of Cleveland, Ohio, and San Francisco, Calif., and the Newport News Shipbuilding & Drydock Company, of Newport News, Va., whereby the latter company will take over all future hydraulic turbine business of the former, including patents and patent applications, drawings, data, etc. The transaction also includes developed and undeveloped inventions and all records of the Wellman-Seaver-Morgan Company.



The largest saw in the world was recently installed in the electrically operated plant of the Eureka Cedar Shingle & Lumber Company of Hoquiam, Wash. The saw is 108 in. in diameter and weighs 795 lb. It was manufactured at the Philadelphia factory of Henry Disston & Sons, Inc., for the special use of the Eureka company. Designs for the saw were developed from ideas originating with the Seattle organization of the Disston company.

Byllesby Corporation Purchases Coast Valleys Company

Through purchase of all of the common stock of Coast Valleys Gas & Electric Company, the H. M. Byllesby Engineering & Management Corporation has assumed complete control of the gas and electric company which serves all of Monterey County and a part of San Benito County, California.

The Byllesby company is known throughout the United States as an operator of many large public utilities. It has more than three hundred million dollars' worth of properties of this kind in California, Washington, Oregon, Idaho, Montana, Colorado, Kentucky, Oklahoma, Wisconsin, and other states.

Its other California properties are the Western States Gas & Electric Company at Stockton, Richmond and Eureka and the San Diego Consolidated Gas & Electric Company serving San Diego and all of the extreme southern portion of California.

James F. Pollard who has been the vice-president and manager of the Coast Valleys company for the past four years is to be retained in that capacity and Phillip S. George will continue as secretary and treasurer. All of the other officers have been changed.

Among the improvements projected by the new organization immediately are a second transmission line to Monterey, thus assuring service without interruption on the Monterey Peninsula; installation of automatic voltage regulators to hold constant voltage in all of the cities and wherever needed in rural substations; extension of service to the town of Castroville and a more liberal line extension rule for service extensions everywhere, including the acceptance without contest of the California State Railroad Commission's order requiring the company to furnish transformers to all customers both inside and outside of cities.

H. L. Jackman of Eureka, who has for many years managed the Byllesby properties there, is also one of the new vice-presidents of Coast Valleys company and will have close supervision of local operations while the local management is bringing the property up to the Byllesby standards. Mr. Jackman is now in Salinas for that purpose.

Supreme Court Upholds Ruling of Utah Commission

Increased rates allowed the Dixie Power Company to apply in the city of St. George, Utah, are upheld by the Utah Supreme Court in a decision recently handed down. The court also upholds the action of the State Public Utilities Commission in allowing the city \$9,907 as a credit due from the power company from the purchase of the old municipal plant.

In St. George the Dixie Power Company secured the municipal plant, contracting to furnish the town with electrical energy at a fixed sum for a lengthy period. The company sought relief, and special rates provided for in the contract were set aside. At a rehearing of the case the Public Utilities Commission found that the special rates allowed the city had been a consideration in the fixing of the purchase price. They found this special consideration to

be \$9,907, and ordered the company to liquidate the sum. From these orders the city appealed.

The contention made by the city was that the Public Utilities Commission had exceeded its jurisdiction in suspending the rates of the municipality on the grounds that the legislature had surrendered the right of regulation to municipalities.

The Supreme Court points out that the Public Utilities Commission after investigation found that while the city was entitled to some consideration in lighting rates in the sale of its plant, that consideration was not to the full extent of the contract allowance. If, therefore, the commission had enforced the contract it would have been discriminating against other power users served by the company.

On the point of upholding the Public Utilities Commission in its power to fix rates to be charged regardless of contract so long as rates are not arbitrary or discriminatory, the Supreme Court is unanimous. One justice, however, withholds his concurrence on another point in the holding of the court, his contention being that the commission was not acting within the scope of its authority when it fixed the amount the utility, in this case, was required to pay to the city in the nature of damages for breach of contract, or as additional compensation for the electric plant conveyed to the predecessor of the Dixie Power Company. He expressed the opinion that this is the making of a new contract between the parties for the purchase and sale of property, and questions the constitutional and legal right of the commission to adjust rights of parties growing out of existing contracts.

Three Successful Meetings Held by San Diego Club

Variety in education and entertainment were not lacking in the first three weekly meetings of the San Diego Electric Club held in November. From an illustrated lecture on Japan on Nov. 6, through a musical entertainment by a male quartette on Nov. 13, to a talk on a Community Chest drive, the Boy Scouts of America and the Junior Chamber of Commerce on Nov. 20, the San Diego club went on toward a festive Thanksgiving party for Nov. 28.

W. A. Hillebrand, former professor of electricity at Stanford University and for years the General Electric Company's representative in Japan, gave an illustrated lecture on "Electrical Development in Japan, on Nov. 6. Hugo Kuehmsted was chairman of this meeting.

Roy Hartwell as chairman of the program for the day, on Nov. 13, introduced the Colonial theater male quartette, which sang numerous "barber shop" selections in harmonic style. A good deal of amusement was occasioned by the edict that those not at the Hallows'en party be made to pay fines.

Lou Arland, president of the San Diego Junior Chamber of Commerce, introduced by C. C. Clardy, chairman of the day, gave an interesting three-way talk on Nov. 20. Mr. Arland spoke for the Community Chest drive, linking in the work of the Boy Scouts and of the Junior Chamber of Commerce.

At the latter meeting it was announced that the regular monthly social gathering of the club would be a Thanksgiving dinner dance, given at the Barn, at Grossmont, near San Diego, on Nov. 28.



Windows similar to the one illustrated above, are used by the Southern California Edison Company to aid in selling securities of the company. Through the efforts of its investment department the company has sold stock valued at about fifty-seven million dollars to fifty-nine thousand persons.

S.E.D. Directors Hold Meeting with Publicity Council

The concurrent meetings of the board of directors of the Society for Electrical Development, Inc., and the Advisory Publicity Council, functioning for the Society for Electrical Development and the Joint Committee for Business Development, were held in New York City, on Nov. 10. Committee chairmen reported the activities of their committees to the Society directors and announcement was made that the Fan Motor Section of the Associated Manufacturers of Electrical Supplies had voted to join the Society as a group. The success of Camp Cooperation III was told at the meeting of the directors of the Society.

The elimination of waste because of duplication of material in the production of dealer helps and literature was the outstanding subject discussed at the meeting of the Advisory Publicity Council. It was the opinion of the men in attendance that a great amount of money could be saved if the Society would produce the general sales helps and window display material for the entire industry. This would relieve individual manufacturers of the work and expense of these details and leave them free to produce material to emphasize their own individual products.

Install Cross-Over Oil Switches on Big Creek Lines

The Southern California Edison Company has recently completed the installation of oil switches in the cross-over switching stations of the 220-kv. Big Creek lines at Newhall, Bailey's, Farmersville and Citrus Cove. By this installation the Big Creek lines are divided into sections approximately 35 miles long. One oil switch has been placed at each station, connected in series with the air-break cross-over switches. The air-break sectionalizing switches have been kept in the service at these stations, however. The combination of oil cross-over switches and air sectionalizing switches permits any section of the line to be taken out without interruption to the service.

Before the change in equipment was made, it was necessary to take a long section of line, between oil switching stations, out of service when any maintenance work had to be done on the line. As this materially decreased the capacity of the Big Creek lines it could only be done when the load was light. With the present equipment it is possible to take a section out for repairs at any time and thus maintain the lines with less difficulty.

Yukon Territory Will Be Served by Wireless Stations

The Canadian Federal Government has sent Major W. A. Steel, of the Canadian Signal Corps, to Dawson City to superintend the erection of wireless stations at that city and at the Mayo silver camp. These two stations are to be finished this fall, and will form the nucleus of a string of stations, extending to the Mackenzie River in the Northwest Territory.

In the past, telegraphic communication with Dawson City has been main-

tained by a direct wire, passing for a long distance through a tractless territory, which necessitated considerable expense to keep it in repair. Mayo silver camp, which has been growing in importance year by year for the last four years, and which last year shipped silver-lead ore to the value of approximately two and a quarter million dollars, has had no form of telegraphic communication.

At Fort Norman, on the Mackenzie River, the Imperial Oil Company has been boring for oil for the last four years, and has met with some measure of success. Only recently, A. M. McQueen, vice-president of the company, announced that the company had every intention of continuing its explorations. In the past, this camp has been entirely without communication with the outside world for eight months in the year. It is too late in the season to attempt the construction of a station at Fort Norman this year, but the work will be started at the earliest possible date next year.

Southern California Edison Co. Records High Peak Load

The peak load of the Southern California Edison Company reached the highest point in the history of the company on Oct. 17, when the demand amounted to 312,500 kw. This peak is 30 per cent greater than the kilowatt-peak of 1922. During the month of October there were ten days on which the company's peak load exceeded 300,000 kw.

This peak was due to the facts, that because of the absence of fall rains the irrigation load was still on, that there was an extra heavy railway load, that the Edison company was carrying a large per cent of the load of the City of Los Angeles and a portion of the load of the Southern Sierras Power Company and that the lighting load at this time of year overlapped the railroad load.

The company has announced that the generated output in kilowatt-hours during the first ten months of 1923 shows an increase of 28.3 per cent over the same period of 1922.

E. Clarence Miller of the Miller Engineering Company, Seattle, Wash., has filed application with the Department of Public Works at Olympia for appropriation of water for a \$1,500,000 hydroelectric power project, utilizing water from the south fork of the Nooksack in Skagit County, the plant to be built on the Skagit River near Lyman. Mr. Miller states that he is negotiating with private interests who plan the development of a plant to serve Lyman, Hamilton, Concrete, Sedro-Woolley, Burlington, Mount Vernon and other Skagit County towns. The plans are to develop approximately 15,000 hp. and will involve the construction of a 5,000-ft. cement-lined tunnel, a dam 100 ft. wide and 50 ft. high.

The Utah Power & Light Company contemplates the installation of a 20,000-kw. steam turbine at its Jordan plant, according to S. R. Inch, vice-president and general manager. Construction of this plant is dependent upon the granting of the right to use additional water from the Jordan River.

Books and Bulletins

PHYSICS IN INDUSTRY

By ARCHIBALD BARR, SIR JAMES ALFRED EWING and CLIFFORD C. PATERSON, with a foreword by SIR J. J. THOMPSON. 59 pages. Published by Oxford University Press, American Branch, New York.

This volume contains the first three of a series of lectures, which have been established by the Institute of Physics on the part played by physics in various industries. One of the objects of the Institute is to secure the recognition of the professional status of the physicist and to urge the importance of physics in industry. Consequently, it was thought by the Council of the Institute that a series of such lectures by experts would be a help to students of physics who intend to devote themselves to industrial research and would also be welcomed by those interested in the application of science to industry.

As stated in the foreword—"Discov-eries in physics apparently far remote from practical application have led to the foundation of new industries, or have revolutionized old ones. Electro-magnetic Induction, Electrical Waves, Electrons, Roentgen Rays, are but a few among many illustrations of this."

The three lectures in this volume are: "Physics and Engineering Science with Special Reference to Mechanical Engineering," "The Physicist in Engineering Practice," and "The Physicist in Electrical Engineering."

In the reading of these lectures one is struck by the fact that throughout our industries the physicist and the engineer are working side by side for a better product and to lower the cost of production. The application of physics to industry is well explained by Paterson where he states, "These uncertainties and mysteries in industry must be explained. . . . They can only be cleared up by knowing what are the physical laws which underlie its processes and govern the behavior of its products. This knowledge must be part and parcel of the factory equipment, and must not be regarded as an academic thing, the property of one or two experts."

Another factor is forcefully brought out through the lectures. The physicist is ever the pioneer discovering new laws and searching for a new use for the known physical facts. As an example, Barr says, "The existence and nature of electrons, their power of movement in an electric field, their emission from hot bodies, were physical discoveries apparently remote enough from practice, but when applied by one who was both physicist and engineer they gave us the Fleming valve, and endowed wireless telegraphy with an organ of perception incomparably more sensitive than it possessed before."

To an engineer these lectures are extremely interesting and it is hoped that the Institute of Physics will see to it that a comprehensive series of such lectures will be presented.

E. R. S.

Meetings

Los Angeles Electric Club Holds Ladies' Day Meeting

One of the largest noon day meetings in the history of the Electric Club of Los Angeles was held on Nov. 19, when the club was host to the ladies at one of its regular weekly meetings at the new Los Angeles Biltmore Hotel.

The program which was arranged by Messrs. MacDonald, Loomer, Allen and Smith, in the interest of the ladies, proved a most attractive one, for over four hundred members and their wives attended the noon day gathering. The program was musical and entertaining in character and proved most pleasing to the huge assemblage.

One of the features of the occasion was the "Beauty Contest" so admirably conceived and planned by the program committee on four of the unsuspecting members of the club. These members were previously nominated by a primary ballot and at the opportune time, presented to the gathering—much to their surprise. It was then the ladies' turn to select the handsomest "gent," and the contest finished as follows: First—F. E. Seaver, assistant secretary, Los Angeles Gas & Electric Corporation; second—J. H. Jamison, manager, merchandising division, Westinghouse Electric & Manufacturing Company; third—Arthur L. Spring, manager, advertising and merchandising department, General Electric Company; fourth—A. B. Vandercook, sales manager, Western Electric Company.

As each winner was announced he was presented with a letter to the charity committee of the club, which had been written and signed by him (much to his surprise and chagrin) and which contained his announced donation for having been selected as one of the handsome. Their signatures were verified by officers of their respective firms, and their donations duly recorded. The winner's donation was the lowest and the fourth place winner the highest.

The full and complete program including introductions, prize contests and entertainment was broadcasted over the Los Angeles Times station. This was arranged through the courtesy of "Uncle John" Daggett of The Times, who was present at the meeting; the microphone in the ball room of the Biltmore being directly connected with KHJ broadcasting station some eight blocks away.

C. E. Skinner Is Nominated for Institute Presidency

Nominations for the presidency of the American Institute of Electrical Engineers now include C. E. Skinner, director of research of the Westinghouse Electric & Manufacturing Company, in addition to Farley Osgood, the announcement of whose nomination appeared in the Nov. 15, 1923, issue of the Journal of Electricity (p. 351).

Mr. Skinner has been very active in Institute affairs. He has been director of the research department of the Westinghouse company for many years and

was recently made assistant director of engineering, devoting most of his time to standardization both in America and abroad. Mr. Skinner is a native of Ohio, born in 1865, and is a graduate of the Ohio State University. He has been with the Westinghouse organization ever since his graduation, and his record there is one of continuous accomplishment. It was he who organized the research division in 1906. Mr. Skinner is a fellow of the American Institute of Electrical Engineers and has represented the A.I.E.E. on the International Electrotechnical Commission, having been chairman of the American delegates to the Brussels meeting in 1920. He also has represented the Institute on the American Engineering Standards Committee, the Engineering Council and the American Engineering Council. He is a member of the Franklin Institute, the American Technical Society and the American Society for Testing Materials. He was a member of the National Research Council in 1917 and 1918. In Institute activities he has served on the following committees: Edison medal, editing, education, electrophysics, executive, public policy, research, safety codes, standards. He was a manager of the Institute in 1915-1919 and vice-president in 1919-1920.

Los Angeles Electric Club Adds New Members to List

The Electric Club of Los Angeles recently secured over one hundred and fifty new members in a membership drive which lasted for a period of three weeks.

The regular membership committee of the club, of which Arthur L. Spring is the chairman, was augmented for the duration of the drive, with about forty members of the club. One issue of "Sparks," the weekly bulletin of the club, was devoted solely to the announcement of the plan as devised by R. E. Smith, president of the club, and was immediately put into effect.

This appeal and the work of those on the membership committee produced

COMING EVENTS

American Society of Mechanical Engineers—

Annual Meeting—New York, N. Y.

Dec. 3-6, 1923

most excellent results, for on the first meeting day after the plan was announced, this being two weeks, as there was no meeting on Armistice Day holiday, 114 new members had been secured; but President Smith deemed this insufficient and continued the drive for a third week with excellent results, as more than fifty new members were added during the last week, bringing the total well over the one hundred and fifty mark. With this addition to its membership it gives the club well over 600 paid-up members.

The Federal Power Commission, Washington, D. C., has issued its third annual report dealing with the activities of the commission. The report deals in detail with the attitude of the commission relative to hydroelectric development and with statistics as to applications and permits.

Illuminating Engineers Address Rocky Mountain League

At a meeting of the Rocky Mountain Electrical Cooperative League, on the evening of Nov. 7, A. B. Oday, assistant illuminating engineer of the Edison Lamp Works of the General Electric Company, and H. C. Meredith, illuminating engineer of the Ivanhoe Regent Metal Works, were the principal speakers.

Mr. Oday spoke on "Modern Illumination," and in his opening remarks stated that the public, to a great extent, does not know the difference between good and poor lighting. Through the cooperation of all branches of the electrical industry, he said, the public can be educated to a proper knowledge of this subject. "The man who pays the bill, the consumer, should get value received, and he is not getting it unless he gets adequate illumination," declared the speaker, "and if he doesn't get adequate illumination we are to blame."

By means of illustrations Mr. Oday pointed the defects of various types of lighting equipment in the home, and showed how they could be remedied. He cited the low cost of lighting as compared with other commodities in the home.

Mr. Oday discussed store window lighting, and illustrated by charts the value of high intensity in such lighting. He also showed by means of charts the results of tests which indicated that a well lighted window attracts a very large percentage more people than a poorly lighted window. Proper equipment for the most effective window lighting was also shown on charts.

Mr. Oday gave some interesting demonstrations of diffusing light, the elimination of glare, etc. Miniature show windows were displayed, by means of which the speaker demonstrated the effects of proper and improper window lighting, color lighting combinations, and correct intensity.

Mr. Meredith's talk was largely a discussion of home lighting. He also stressed the idea that for everybody to get the best results the public must be educated, and that the responsibility for that education rests upon all those connected with the electrical industry. He stated that the manufacturers stand ready to assist more than ever in this work—that they have developed somewhat ahead of the balance of the field, and are now ready to supply the right materials for better illumination.

Mr. Meredith called attention to the much greater ease on the eyes in the use of up-to-date glassware in lighting equipment, demonstrating many new ideas in shades.

The meeting, which was presided over by A. J. Callaway, manager of the Western Electric Company's Salt Lake City office, and vice-president of the Rocky Mountain Electrical Cooperative League, was well attended.

At the monthly business meeting of the Ogden chapter of the American Association of Engineers, held on the evening of Nov. 9, a protest against replacing trained engineers with politicians was made. This protest was forwarded to the national organization. It followed action of other chapters of the organization in protesting the dismissal of Arthur F. Davis in charge of the Reclamation Service.

Manufacturer, Dealer and Jobber Activities

The Westinghouse Electric & Manufacturing Company has recently put on the market a new type of electric bake oven which is particularly adapted to use by restaurants, cafeterias and hotels. The new oven, which is known as the automatic sectional-type electric bake oven, is constructed in sections, each of which is independent of other sections and is entirely automatic. The sections are made in two standard sizes, one with a capacity of 20 and the other of 60 loaves. Each section is equipped with motor operated snap switches, a thermometer and thermostat for controlling the oven temperature. The heating units, which are entirely enclosed, are mounted at the top and bottom of each section and are distributed so as to give uniform temperature throughout the baking chamber. New sections can be added at any time.

The Kilark Electric Manufacturing Company, St. Louis, Mo., has published Page No. JB 502, which is a catalog sheet describing the new radio frequency amplifying transformer manufactured by the company.

The General Electric Company, Schenectady, N. Y., recently published a reprint from the General Electric Review of September, 1923, entitled, "Record Breaking Current Collection Tests." The booklet describes the tests made on collecting current from overhead trolleys by means of standard pantographs, practically the same as are used on the electrified sections of the Chicago, Milwaukee and St. Paul Railway. Currents from 5,000 to 6,000 amp. were collected during the tests.

The Conlon Corporation of Cicero, Ill., manufacturer of the new Incomparable Conlon washer, announced the appointment of C. G. Flatt as Rocky Mountain representative, with headquarters in Denver, Colo. Mr. Flatt was formerly a salesman with the Western Electric Co., and more recently has been associated with Alex Hibbard, Inc., Denver.

Edgar N. Dollin, New York, N. Y., has recently placed on the market a new type of die-casting machine. The manufacturer claims that this is the first die-casting machine that has been disclosed to the public.

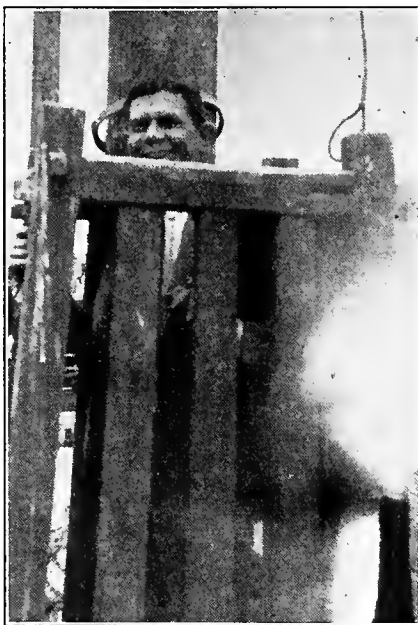
The Electric Controller & Manufacturing Company, Cleveland, Ohio, has recently published Bulletins No. 1042-D and 1045-A. The former bulletin is devoted to the company's line of automatic compensators for alternating current squirrel-cage motors. The bulletin is accompanied by a net price sheet. Bulletin No. 1045-D contains matter in connection with the company's Type NC squirrel-cage induction motors. The bulletin supersedes No. 1045 which was published in September, 1922.

Western Electric Company, New York, has announced a new model of electric washing machine for home use. All mechanism is concealed in a case of attractive design, controls are easily reached from any position and the all-metal swinging wringer locks in five positions.

The Pioneer Rubber Mills (of California) have moved their general offices to their new six-story office building at 345-353 Sacramento Street, San Francisco. Their mills are at Pittsburg, Calif., and they have sales offices in principal cities of the United States. They manufacture the "Skookum" brand of piston rod packing, also mechanical rubber goods, hose and belting.

The Edison Electric Appliance Company, Inc., is now marketing a single deck electric bake oven designed for use by small delicatessens and restaurants. The oven has a capacity of 20 one-pound loaves of bread and is so designed that, if increased business necessitates, a top deck may be added to the oven. Heating elements in the oven are located at the top and bottom of the compartment and are insulated against heat radiation.

The Scheeline Manufacturing Company of San Francisco, Calif., has recently opened a branch office in Los Angeles in the Metropolitan Building with J. R. McCormack in charge.



This individual may smile and still be a villain, for in former days many a pirate met his death aboard this ship and in this encasement wherein now stands Glenn E. Arbogast, manager of the Newbery Electric Corporation of Los Angeles. Anyhow, it was a hot day over at Catalina Island and Glenn is perhaps thinking of what he sees in the distance bathing in the surf.

Harvey Hubbell, Inc., Bridgeport, Conn., has just brought out a new pull socket with detachable hickey for candle fixtures. The terminals are so located as to be easily accessible, permitting quick attachment. The detachable hickey may be easily removed and wiring is made easy by large binding screws and deep raceways, both of which are on the outside of the socket. Chair is equipped with detachable acorn, permitting it to be dropped through a hole in the bobèche if so desired.

The Reliance Electric & Engineering Company, Cleveland, Ohio, has just issued a new and instructive booklet. This booklet contains considerable valuable data relative to motors and will be furnished free on request to the factory.

Locke Insulator Corporation, Victor, N. Y., has just issued an attractive new catalog—No. 25, Bulletin No. 2—which deals with Locke suspension insulators, clamps and attachments. This catalog will be of interest to every central station and construction engineer and will be furnished upon request to the factory.

The Western Insulex Company, Oakland, Calif., announces the formation of a marketing organization for their products under the name of Western Insulex Sales Company. The new company has offices on the ground floor of the Rialto Building, Mission and New Montgomery Streets, San Francisco, Calif., and has extensive display and sales facilities at that location.

NePage, McKenny Company, Armour Building, Seattle, received the electrical wiring contract in the proposed Temple De Hirsch to be built in Seattle at a cost of \$115,000.

The Sumner Electric Company, Sedro Woolley, Wash., has received contract for furnishing and installing electric fixtures in the new \$160,000 Union High School building at Sedro Woolley.

The National Board of Fire Underwriters, Chicago, Ill., has just issued a new list of appliances inspected for hazard, and has also issued the latest supplement on inspected electrical appliances. These lists may be obtained on application to the Board of Fire Underwriters of the Pacific, Merchants' Exchange Building, San Francisco, Calif., or from the National Board of Fire Underwriters, 207 East Ohio Street, Chicago, Ill.

George W. Wood has opened a new electric shop in the Gem State Building at American Falls, Ida. He will do a general retail electrical contracting and supply business.

The Benjamin Electrical Manufacturing Company has announced a second prize contest for window displays featuring its two-way plugs. Fourteen prizes, ranging from \$100 down to \$10 each are offered and free window trim material is supplied on request.

The Ward Leonard Electric Company, Mount Vernon, N. Y., has brought out a new type of terminal for large size resistor units. The terminal connection may be made simply by means of a wrench and permits of soldering if desired. The entire resistance is enclosed in vitreous enamel, giving absolute protection against electrical, mechanical or chemical disintegration.

William Gainschow Company, Chicago, Ill., has just issued a new hand book on gears and speed transformers. The book is combined with its catalog No. 100 and contains complete information relative to the design and specifications for gears of all sorts for all purposes and also has considerable additional engineering data. This book will be furnished to manufacturing executives upon request.

H. B. Squires Company, manufacturers' agents with offices in San Francisco and Los Angeles, Calif., have just taken new quarters for their Los Angeles branch. A ten-year lease has been secured on the entire building at Boyd and Wall Streets and occupancy will begin at once. Mr. Squires has recently moved to Los Angeles to take charge of the southern office.

Personals

Dean D. Clark, treasurer of the Denver Electrical Cooperative League, is one of the pioneers of the telephone industry in the Rocky Mountain region.



DEAN D. CLARK

Early in 1905 when it was necessary to solicit farmers as subscribers, Mr. Clark covered the rural sections as state contract agent of the old Colorado Telephone Company. He was later made a special agent of the company with headquarters at Delta, Colo. In 1911 he was appointed division commercial superintendent of the El Paso, Texas, district of the Mountain States Telephone & Telegraph Company and remained there until March, 1920, when he returned to Denver as commercial manager of the company in that city. He is a member of the Lions' Club, Denver Athletic Club, and the Denver Civic & Commercial Association. He served on the Advisory Board of the Electrical League last year for the first time and when the new fiscal year of that organization started July 1 was unanimously elected treasurer.

Albert P. Wanner has become associated with K. I. Dazey, distributor of Commercial electric trucks in San Francisco. Mr. Wanner was for some time traffic agent of the Key System and was later in the purchasing department of the Spreckels companies. He comes to San Francisco from the purchasing department of the San Diego Electric Railway Company.

G. Ernest Hill, formerly salesman for The Electric Corporation of Los Angeles, Calif., has recently been appointed stores manager of The Electrical Appliance Shop, electrical retail dealers of Los Angeles.

J. E. Hobrecht, of the J. E. Hobrecht Company, Sacramento, Calif., is a recent visitor to San Francisco in connection with holiday business.

W. R. Edwards, formerly manager of the land department, Pacific States Electric Company, Los Angeles, Calif., has been appointed manager of the Oakland office of that company. H. M. Jemeny of the sales department, Los Angeles office, has been appointed to succeed Mr. Edwards.

J. E. Yates, electrical engineer of Portland, has made an inspection of the plant of the Eastern Oregon Light & Power Company and states that the 35-mile transmission line running from Olive Lake, near the Fremont plant, to the Rock Creek generating plant is constructed over some of the roughest mountain country through which transmission lines have been constructed in the West. This line has been built for 17 years.

George W. Duncan, Jr., formerly with Leland & Haley, San Francisco, Calif., has left that firm to form a partnership with Albert A. Coddington. The new firm will be known as Coddington & Duncan and will act as consulting mechanical engineers with offices at 547 Phelan Building, San Francisco, Calif.

C. E. Louis, who for a number of years has been connected with various electrical retail stores, as stores manager, has recently joined the organization of The Electric Corporation, electrical jobbers of Los Angeles, in the capacity of appliance salesman. Mr. Louis was for a number of years store manager of the H. L. Miller Company, Pasadena, Calif., and made a reputation in the efficient handling of the retail trade and for his window displays and store arrangement.

Charles L. Sumner, for some time with Alexander & Lavenson Electrical Supply Company, San Francisco, Calif., and later with the Edward Jones Hardware Company, San Francisco, has resigned to join the sales force of the Trumbull Electric & Manufacturing Company. He will travel the eleven western states.

J. Le Roy Haley, of the Tomboy Gold Mining Company, Smuggler, Colo., has resigned his position with that company to become operating engineer for the Durango Steam Plant of the Western Colorado Power Company at Durango, Colo.

R. G. Chamberlain, district manager, of the Hurley Machine Company, Seattle, Wash., is in Spokane, for the express purpose of cooperating in the campaign now being conducted by The Washington Water Power Company in the sale of Thor washing machines and of the new "Hurley superior oscillator." He states that general conditions are better than they have been for the past five years and on the basis of the results already obtained, predicts that the success of this, the biggest campaign ever organized by The Washington Water Power Company on washing machines is assured.

Col. W. J. Barden, engineers corps, United States Army, was the honor guest and principal speaker at a recent joint meeting of the Seattle section, American Society of Civil Engineers and the American Society of Military Engineers, at the Engineers' Club, Seattle. Col. Barden spoke on "The Muscle Shoals Power Development," drawing upon his knowledge of the subject from the three years in which he was in charge of the power development.

C. H. Snow and E. G. Pendleton, of the Pacific States Electric Company of Los Angeles, were visitors in San Diego Nov. 20, and were introduced to the Electric Club of that city by G. H. P. Dellman, lighting sales engineer for the San Diego Consolidated Gas & Electric Company.

W. H. Hodge, manager of the publicity department of the H. M. Byllesby Engineering and Management Corporation, Chicago, Ill., is a recent visitor to the Pacific Coast. During his stay he visited the various projects of the company, including the new El Dorado development.

H. D. Randall of the General Electric Company, J. P. Sprunt, Jr., of the Westinghouse Electric & Manufacturing Company, R. G. Gentry and F. F. McCammon of the Public Service Company of Colorado, were among the Denver men attending the national commercial section meeting in Salt Lake City, Nov. 21 and 22.

Edward W. Moore, vice-president of the Federal Electric Company, Cincinnati, Ohio, has been made manager of the San Francisco, Calif., office of that company, succeeding Tracey Simpson who resigned recently.

James D. Sparks, Seattle agent for Universal electric appliances, is spending several days in Spokane, Wash., in connection with general sales matters. He finds that the new appliances brought out this year, including round waffle irons, oven toasters, griddles and percolators are meeting with a cordial reception, and that prospects for a record breaking year are splendid.

C. Kirk Hillman, electrical supply dealer of Seattle, Wash., has secured the corner of First Avenue South and Hanford Street, as a permanent home for his business. Mr. Hillman is erecting a building, to be used as a salesroom and warehouse, which will give him 24,000 square feet of floor space as compared with 3,000 square feet in his old quarters.

S. H. Taylor, secretary of the Pacific Coast Electrical Association, San Francisco, Calif., has just been appointed Pacific Coast representative for the Society for Electrical Development. Mr. Taylor has had long experience and contact with the electrical trade of the entire Pacific Coast, having been for several years general manager of the



S. H. TAYLOR

Electric Railway & Manufacturers' Supply Company, San Francisco, Calif. Early in 1920 he was appointed secretary of the Pacific Coast Electrical Association, which position he still holds. His new work will be carried on concurrently with other association work. The Society for Electrical Development has taken offices in the Rialto Building adjoining those of Mr. Taylor.

H. E. Sherman, Jr., vice-president and sales manager, Illinois Electric Company; H. C. Rice, appliance sales agent and Will H. Fischer, manager, department of greater service, Southern California Edison Company, and J. H. Jamison, manager merchandising division, Westinghouse Electric & Manufacturing Company, were among the Los Angeles, Calif., electrical men attending the meeting of the commercial section, Rocky Mountain Division, National Electric Light Association, at Salt Lake City.

Halford Erickson, president of the Coast Valleys Gas & Electric Company, is a recent visitor to the Pacific Coast in connection with the purchase of that company by the H. M. Byllesby Engineering and Management Corporation.

E. R. Nash, of the Nash Electric Supply Company, Monterey, Calif., was recently in San Francisco. Mr. Nash made the trip in connection with business of the Christmas season.

A. G. Wishon, of the San Joaquin Light & Power Corporation, Fresno, Calif., was recently in San Francisco for a few days.

J. C. Manley, city engineer of Tacoma, has resigned from that position and has been succeeded by C. E. Putnam, who has been construction engineer in the city service since 1921.

R. C. Smith, advertising manager of the Journal of Electricity, San Francisco, Calif., has resigned to become advertising manager of the Pelton Water Wheel Company. He will have headquarters at the San Francisco, Calif., factory of the company. Mr. Smith attended school at the University of Michigan, class of 1916, specializing in electrical engineering. At the outbreak of the war he joined the Air Service and was attached to the Intelligence Bureau, doing particularly notable work in aerial photography. At the close of the war he joined the force of the McGraw-Hill Company, New York, N. Y., and was for some time manager of the field photo service of that com-

W. R. Lyall, Pacific Coast representative of the D. & W. Fuse Company, San Francisco, and N. Levinson, Pacific district radio specialist of the Western Electric Company of San Francisco, are recent Los Angeles visitors.

C. A. Rylander, of Fobes Supply Company, San Francisco, Calif., has been placed in charge of the lamp department of that company.

K. E. Van Kuran, district manager, Westinghouse Electric & Manufacturing Company, Los Angeles, Calif., has just recently returned from a six weeks' eastern trip where he went to attend the annual meeting of the district managers of his company. While in the East, Mr. Van Kuran visited the various factories of the company and reports excellent business conditions prevailing.

E. R. Northmore, superintendent of distribution, Los Angeles Gas and Electric Corporation, Los Angeles, Calif., has been called to Mexico City owing to the sudden illness of his daughter who is visiting friends and relatives in the Mexican city.

R. C. W. Libbey, western representative of the Simplex Electric Heating Company, Cambridge, Mass., with headquarters at San Francisco, Calif., is receiving the sympathy of his many friends on account of a serious accident which occurred to him recently. While conducting a feature display of the mammoth Sunbowl heater mounted on an electric truck he had the misfortune to fall and break a collar bone. The accident was very painful and will result in disablement for about six weeks.

Frank E. Watts, nationally known figure in the electrical industry, has joined the organization of The Apex Electrical Distributing Company, Cleveland, in the capacity of director of distribution and publicity. For the past three and a half years Mr. Watts has been identified with the Gage Publishing Company of New York, first as assistant to the president and later as editor of Electrical Record and editorial director of the Spanish publication, *Electricidad en America*. He has for ten years made a special study of the economics of distribution. In his connection with the Apex company the work of Mr. Watts will be of a national character, as heretofore, and he will continue to be closely identified with the entire electrical industry.

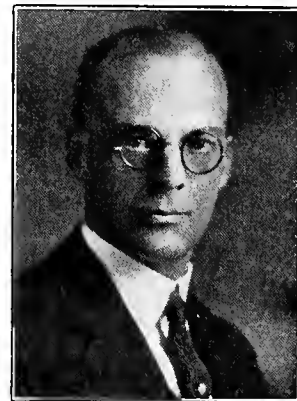
O. F. Felix, secretary of the National Metal Molding Company, Pittsburgh, Pa., was in Denver, Colo., recently on his return from San Francisco and other Coast cities.

George Williams, representative of the "1900" Washer Company with the Public Service Company of Colorado for several years, has been transferred to Chicago to take charge of the sales of his company in the middle West. With his leaving Denver the resale plan of the "1900" Company has been discontinued and Walter McCourt has been placed in charge of laundry equipment sales for the Public Service Company in Denver.

A. D. (Dent) Slaughter, of the Allied Industries, Inc., San Francisco, Calif., is on an extended trip to Seattle, Wash., and the Northwest. He will return to San Francisco about Dec. 1.

A. R. Small has been elected first vice-president of the Underwriters' Laboratories, Chicago, Ill.

W. M. Shepard, recently elected chairman of the executive committee of the Commercial Section of the Northwest Electric Light and Power Association, is one of the conspicuous figures of the electrical utility field of the northern Pacific Coast section. He was graduated from Alabama Polytechnic Institute in 1904 and then spent about a year with the Knoxville and Northern Railroad. In 1905 he joined the General Electric Company and was later trans-



W. M. SHEPARD

ferred to San Francisco by that company. In 1916 he joined the force of the California Oregon Power Company as commercial agent and in 1918 became general agent of that company. Early in 1923 he was made vice-president and general agent of the company. He has always been one of the most active workers for electrical development and has been intimately connected with the planning of interconnected systems.

R. W. Gorham has just been appointed sales manager of the Altorfer Brothers Company, Peoria, Ill., manufacturers of the A.B.C. line of washing machines and ironers. The appointment became effective Nov. 1.

Gordon W. Hamilton, power sales engineer, Westinghouse Electric & Manufacturing Company, Los Angeles, Calif., has recently returned from Jerome, Ariz., where he assisted in the sale of a large turbine to the United Verde Mining Company.

P. E. Cook, chief engineer, and W. F. Parker, sales manager, of the Packard Electric Company, Warren, Ohio, are on the Pacific Coast making an analysis of business conditions.

W. I. Powell, formerly of the Manhattan Electric Supply Company, San Francisco, Calif., has been appointed salesman for Fobes Supply Company, San Francisco. He will cover the territory north of Sacramento to the Oregon line and also will work in Nevada.

A. R. Fierce, proprietor of the Wholesale Electric Company, San Francisco, Calif., has just returned from an extensive trip to Youngstown, Ohio, and other eastern cities. He visited several equipment factories and reports notable business activity throughout the East.

W. H. Carter, of the Russell Electric Company, Chicago, Ill., manufacturers of Hold Heet appliances, has been transferred to the San Francisco office of the company and will cover the eleven western states for the firm.



R. C. SMITH

pany. In 1920 he was transferred to San Francisco as advertising manager of the Journal of Electricity. His contact with the entire electrical and engineering trade of the West has been very extensive and he has a wide acquaintance with administrative and executive personnel. Mr. Smith carries to his new work an exceptionally extensive advertising experience.

Trade Outlook

San Francisco

Retail trade is especially active and general conditions continue to show steady improvement. Agricultural sections are benefiting from crop returns and country loans are rapidly being liquidated. Increased buying power also is evident.

Exports to the Orient have materially increased but European buying has shown somewhat of a decline, particularly on fruits and foodstuffs. Mexican and Latin American business is improving.

Building still continues with possible evidences of slightly diminished future volume.

Electrical supplies and appliances are in increasing demand and jobbers report satisfactory conditions prevailing. Appliance sales bid fair to break all merchandising records.

Banks report extremely favorable reserves and optimistic conditions.

Los Angeles

Business continues good for electrical manufacturers and wholesalers, as a result of the continued building and expansion program under way.

Wholesalers of electrical appliances report excellent business during the past few weeks on account of anticipation by dealers of the Christmas trade.

Electrical retail sales showed a slight decrease, however, this condition is not expected to continue much longer and a large volume of retail sales is confidently expected.

Los Angeles continued to break all records in building, bank clearing, postal receipts and in imports and exports; all of which augurs well for continued prosperity. October showed an increase of over fifteen per cent in postal receipts, while for the first two weeks of November, building showed an increase of thirty per cent over the same period last year, while bank clearings increased thirty-two per cent for the same period.

Portland

General business in Portland is in a very healthy condition. The longest summer in over twenty years has greatly helped outside activities, and labor has no difficulty in finding employment. Crops are all in and better than average. Central stations are increasing loads, the output in Portland being 15 per cent above a year ago.

Building permits for October totaled \$2,566,335, 69 per cent over October, 1922, and 8 per cent over the preceding month of this year.

Total exports from the Port of Portland for October were \$8,129,221. The demand for cargo space to the Orient is greater now than at any time during the last three years. Vessels out of Portland are booked eight weeks to four months in advance.

Lumber is one of the principal commodities causing the heavy traffic. Production in the mills is now given as 27 per cent above normal and the cut so

far this year 20 per cent above that of one year ago. Lumber men are looking forward to continued prosperity in 1924 with Japanese markets playing an important part.

Seattle

Generally improved business conditions prevail in and about Seattle. The increase noted varies from 10 per cent in some lines to as high as 60 per cent in others, according to a recent survey by the Chamber of Commerce. Collections in all lines have been favorable.

No indication of slackening in building construction in Seattle is noted during the month, particularly in residence construction. Permits for several large apartment houses have been granted.

Lumber production is maintained at about 20 per cent over normal, with more than half of the new business booked for water delivery. Production thus far this year in the lumber industry has been 31 per cent greater than 1920, the previous record year. Heavy orders of lumber from Japan are interesting Northwest manufacturers.

Electrical jobbers in Seattle report good business, with every indication of continuing through the holiday season. Sales to central stations throughout Puget Sound district for power plant, extensions, unfinished telephone construction, and manufacturing, have been heavy. Household devices are moving readily, particularly electric ranges and washing machines, and indications are that these will be popular holiday gifts. Prices on standard materials are holding, with minor changes in price on specialties.

Spokane

Local manufacturers of wood products are running at good output, though one box factory has shut down, due to a temporary slump in its business. The Hedlund Box & Lumber Company reports orders for its box factory for twelve months ahead, and 60 days' orders for frames and sash. This company operates its own mills in north-eastern Washington, and also produces poles.

Records in crops continue to be reported. Spokane County has produced this season 700,000 bushels of potatoes and 400,000 bushels of seed peas, both setting new marks.

The Spokane packing business has felt the general improvement in business. Hog raising has shown a marked increase this year over last. In 1922, 80 per cent of the hogs slaughtered in Spokane were from points east of the Rockies, while the amount this year was 56 per cent. The corresponding percentage for September and October, 1922, was 76.6 per cent, while for the same months this year it was 23.8 per cent. Local stock raisers have taken advantage of the abnormal "corn hog" ratio that has prevailed this year, utilizing cheap feed. One packer points out that the hog market is a barometer

for the whole industry, and that on this basis, conditions in the other branches of stock raising are likewise improved.

Reconstruction of the Hecla Mine buildings at Burke, which were destroyed by fire in May, is nearing completion and operations will probably be resumed early in the year.

The Washington Water Power Company reports an increase of \$321,277 in gross revenues for the first 9 months in 1923, as compared with the same period in 1922. This increase is approximately 9 per cent and it is considered to be the reflection of the improvement in business conditions in this territory.

Denver

Fall buying is increasing but caution and conservatism apparently govern purchasing. Preliminary indications are for brisk holiday trade. Slow collections are reported but credit conditions have not been impaired. There is a renewal of dwelling construction, a larger number of residence building permits having been taken out during the past fortnight than for any similar period in several months. Denver was the nineteenth city in the United States in the value of building permits issued in October.

Jobbers report prompt shipments from eastern factories with stocks in splendid condition. A number of large wire orders have been recorded recently.

Labor conditions are fairly stable. Unskilled labor is being released gradually while clerical workers are in excess. Reports from the metal and coal mining regions indicate a maximum of development.

Financial conditions in the agricultural districts have been greatly relieved in the first payments made on beets delivered for the present sugar campaign, amounting to over ten million dollars.

Salt Lake City

Salt Lake City finances and those of surrounding cities are in excellent condition, and the same tendency is reflected in rural districts. Demands for loans are exceptionally light.

During November approximately \$5,000,000 was paid to Utah and Idaho sugar beet farmers. This is the first substantial payment of the \$12,300,000 to Utah and Idaho farmers for the 1923 crop.

There is plenty of employment for both skilled and unskilled labor. Industrial plants are practically all on full time. Notwithstanding the fact that there has been a decline in metal prices, the mining industry does not seem to be seriously affected, and is providing steady work for the average number of men employed in mining. For the third quarter of 1923 the Utah Copper Company's output was materially increased over the preceding quarter of this year.

Salt Lake City building is still active and will continue so until bad weather sets in.

Jobbers report a continued improvement in business, which is also true of retail business in general. The idea of electrical Christmas gifts is being intensively brought to the attention of the public, and a good holiday trade is anticipated by the electrical dealers.

Journal of Electricity

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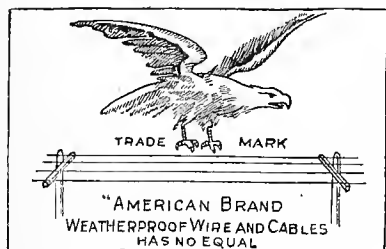
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C. T. HUTCHINSON, Acting Editor
G. W. BARKER, Associate Editor
J. W. OTTERSON, Assistant Editor

G. C. TENNEY, Managing Editor
ROBERT SIBLEY, Consulting Editor
CLOTILDE GRUNSKY, Contributing Editor

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C. T. HUTCHINSON
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Newspaper Comment

THE American press, through its editorial columns, has been characterized as a fairly accurate gage of public opinion. This is, in the main, true except in those cases where a publisher uses his columns to exploit his own selfish motives or unwittingly allows them to be used for propaganda purposes.

The section of the *Journal of Electricity* headed "Current Comment," for the last few issues has been devoted to quotations from the editorial columns of western papers which define the attitude of these journals toward public utilities. Realizing that at the present moment the attitude of the press regarding utilities is vitally important, an attempt has been made to present both sides of various important utility questions as viewed by the editors of these papers.

Our contact throughout the West is such that we are able to bring all of these opinions into a common clearing house, choose those which seem most important and summarize them for our readers. We feel sure that such a service is valuable, for if a busy man were to attempt to read all of the material of this character which crosses the editor's desk he would have time for nothing else.

At a time when municipal and state ownership of electric utilities is one of the foremost questions in many western communities, it is well to know the arguments which are being used to beguile the voters into supporting these measures. The press offers a ready means for obtaining such knowledge. A careful examination of the material which has been printed in the "Current Comment" department for the past few months will give our readers a comprehensive idea of the arguments which are being used by the press both for and against this important question.

We recommend a careful reading of this section of the paper, for every issue contains pertinent information on the attitude of the press toward the power companies.

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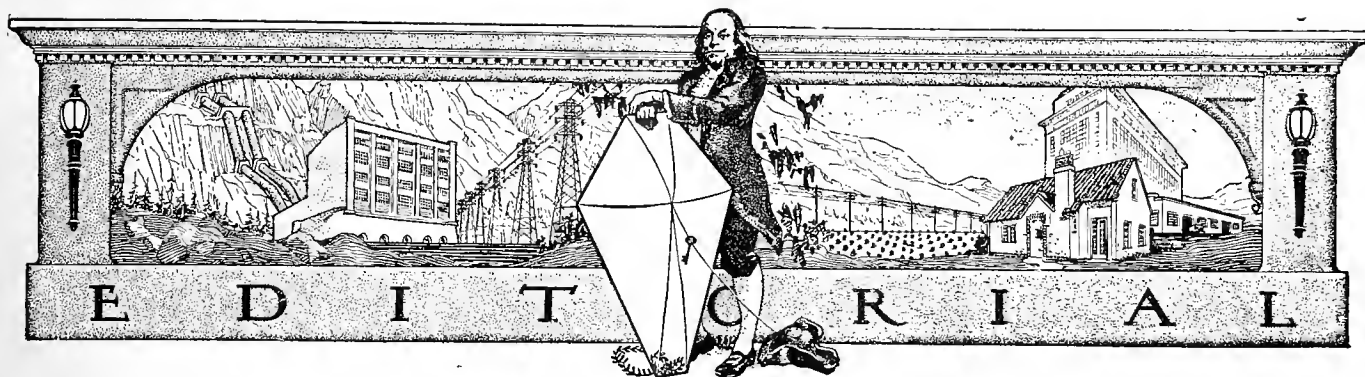
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The Fraternal Spirit of the West

VISITORS to Pacific Coast cities often take occasion to comment upon what they call the fraternal spirit that exists within the personnel of the electrical industry, and to speculate upon the difficulty confronting anyone coming to the Pacific Coast from the East, in obtaining for himself acceptance on an equality with the genus homo, "native son."

THERE is a fraternal spirit, it is true, a strong fraternal spirit. This spirit is characteristic of the West, of the country that the writers of movies are so fond of alluding to as the "great, open spaces, where men are MEN." Further, this spirit seems in direct antithesis to that of the great Eastern cities, where one may pass away from sheer loneliness in cities numbering their population in millions.

IT is generally agreed that the Western man is more frank, more open, in his forms of expression, his confidences, his virtues and his vices, than his Eastern brother, who is generally recognized as a somewhat "cagy" individual, who looks with suspicion upon any stranger who comes within his ken, who regards the expansive grin and the promptly extended hand as the sign manual of the bunko-steerer.

IT is a mistaken idea, however, that the fraternity of the West is exclusive. On the contrary, a man from Oshkosh, St. Louis or New York is weighed in the balance, and accepted or rejected solely upon his individual merits.

Instead of shutting the door in his face, he is more apt to be given a large supply of rope to see what use he will make of it. If he gives himself a metaphorical hanging, he had better move to some fresh field and make another start, and here it may be said that those who mistake familiarity for license are due for a fall.

THE many gatherings of electrical organizations that take place during the year are striking evidences of that fraternal spirit in the best sense of the word. It is refreshing to see competitors, trade rivals, and opposing interests exchange good-humored badinage across the dinner table. They enter into the true spirit of the ancient and honorable pastime of the links. They discuss their common problems with a frankness astonishing to the stranger who hardly dares even to indulge in thoughts, when in the presence of a competitor who might be a mind reader.

NOISY—yes, sometimes. Horseplay—yes, that sometimes happens, even to the occasional perpetration of a practical joke of the slapstick order; in fact, it is not unusual to see a lot of grown men, gray heads among them, act like a lot of high school freshmen, when gathered together during an interim of relaxation from trade conferences. But they are YOUNG old men, and will be so until they die. Perhaps this effervescent manifestation of the Western fraternal spirit is what makes them so.

What Is Behind The Smoke Screen?

A wise fox will walk on the top of a rail fence to throw the hounds off his trail. Crafty Indians have been known to wade in the water of a creek for miles in order to elude pursuers. So it is with politicians. They make use of all manner of tricks in order to deceive their opponents and to befog opposition to the issue they are sponsoring.

Take the case of government ownership of hydroelectric utilities on the Pacific Coast. In both Washington and California plans are being made for state ownership campaigns which will be placed before the voters next November. In the meantime those who are concerned with defeating those measures—knowing as they do that such a procedure is but a step toward the socialization of all industry—are confronted with the task of opposing various and sundry local ownership campaigns. In California there is San Francisco with its Hetch Hetchy, Sacramento with its Silver Creek, Los Angeles and its power bond issues. Washington has its Tacoma, its Seattle and, more recently, its Aberdeen and Bellingham.

During the past fortnight these last two named Washington cities have both voted upon municipal ownership measures. Aberdeen, by a narrow margin, voted \$2,000,000 in bonds for the development of a hydroelectric project on the Wynooche River. In Bellingham, by an even narrower margin, a \$500,000 bond issue for taking over the local distribution system was defeated. It is interesting to note that the proponents of the Washington State Water and Power Act made a great deal of smoke over these two issues. Voluminous reports on the feasibility of the two projects were prepared by them. Speakers were furnished who painted bright pictures of what had been done in Seattle and Tacoma. And in the meantime the sponsors of the state measure, while their opponents were engaged in combating the two local measures, have gone blithely ahead perfecting district organizations for the support of their pet act.

Among the opprobrious terms which we have heard applied to the politicians who urge state or municipal ownership of such a highly technical and intricate business as the generation and distribution of hydroelectric energy is that of being "crazy." They are—like the wily fox, who eludes the farmer whose hen-roost he has looted and makes his way home to his den in safety, with the spoils of his successful raid in his mouth.

When Utility Service Includes a Day Nursery

WHERE does the service obligation of a public utility end? Shall the central station merely furnish an adequate and continuous supply of its commodity to the community and then, with the thought, "my work is done," sit back with an air of self-satisfaction? Sound common sense dictates that the central station and each and every member of its organization should be an active participant in community affairs. Civic betterment, improvements

of one character and another and community activities in general furnish a fertile field for the development of good will.

Occasionally some progressive utility executive, in his desire to make his company of greater service to its consumers and the community in which it operates ventures far beyond the obligations commonly conceived as a part of utility service. Such a venture on the part of the San Joaquin Light & Power Corporation is described on another page in this issue. This company agreed to install a booth in the annual district fair and there to show the many advantages and uses of electricity. Seeking something new and unique in the way of an exhibit, it hit upon the scheme of conducting a day nursery, so that mothers who desired to visit the fair might better enjoy themselves without worrying about their children.

Nor was the opportunity overlooked for spreading the electrical idea. There were milk warmers, portable heaters and heating pads. An electric refrigerator was a part of the equipment. The older children found toy electric ranges with which to amuse themselves.

That the idea was unique cannot be questioned. That it had advertising appeal must be admitted. But above all else it created a lasting good will for the company. Utility executives will find that such unusual service as this, by its unique characteristics, will serve to cement more strongly the bond of friendship and good will between their company and the public which it serves.

The Strange Case of Vladimir, One of Your Workmen

THERE is a man in your employ. It might be that his name is Vladimir Picinich. It matters not. Vladimir has done considerable traveling, although it has not broadened him much. Traveling in the steerage of a steamer and then in a day coach 3,000 miles across the continent is far from enlightening.

He knows something about night life in the city. He learned it washing dishes in an all-night one-arm lunch counter. He does not care much for night life. His days were monotonous. After twelve hours of work every night, he had to sleep much. His room overlooked a dirty back alley. He did not open his window because the noise and glare interfered with his rest.

Vladimir has a better job now. He is digging post holes for an electric company. It is a hard job but he rides around on a truck with a lot of good fellows. His pay is better, so he has brought his wife and girl over from Poland. At night the little girl reads to him from the paper and teaches him some things she learns at school.

But Vladimir still wonders: "Why so dam' many holes?"

This is what he wants you to tell him: why so many holes; what good are they; what his work does for other people; the story of how the business grew;

how the boss, perhaps, did the same work he is doing only for less money.

He thinks perhaps this is a pretty good country. He wants to know more about it. He wants to know lots of things.

Now perhaps Vladimir does not work for you at all. But you have many people working for you who are in the same straits. They are seeking information. If you give it to them they will be better workmen and better citizens. Utilities should remember that in addition to keeping their story before the public, they must sell themselves to their employees.

The Romance of

The Electrical Industry

THOSE concerned with the every-day, matter-of-fact production of electricity or in the production and sale of the appliances which utilize it are apt to forget that there is a certain romance connected with their business. They know some of the historical facts concerned with its development. They fail to realize, however, this history and this romance can be employed as a means for shaping public opinion along the right lines.

The Rocky Mountain Committee on Public Utility Information has made novel use of the story of the development of electricity. A little booklet entitled "The Romance of the Kilowatt" has been prepared and is being distributed generally throughout the grade and high schools of Montana, Wyoming, Colorado and New Mexico. In it the story of the birth and development of the electrical industry is told in a manner which will appeal strongly to the school boy or girl. There is a word about the discovery of electricity, a few lines about some of the great scientists who have been instrumental in its development to its present stage of almost universal application. Edison is linked in with the West, for it was while witnessing an eclipse at Rawlins, Wyo., that he announced plans for his electric lamp.

Then there is a subtle sales message linked in with the story of the development of some of the major appliances. In fact, no point is overlooked which will give to the future industrial and business leaders and housewives a basic understanding of the importance of electricity and of the electrical industry.

The schools offer splendid opportunities to the industry as a field where the seeds of its message can be planted early and firmly rooted. They should not be overlooked.

Why Not a Campaign for Better

Lighting in the Housewife's Workshop?

THE poet is not the only one who is affected by the dampness and drabness of winter. In these months of short days and long evenings the public must depend to a great extent upon artificial illumination in order to accomplish its daily tasks. To the central station falls the lot of seeing that this artificial illumination is sufficient and that it is cheerful. This opens up a new field for business.

There have been industrial illumination campaigns, store lighting campaigns and street lighting campaigns in the various districts served by western power companies. But how about the housewife and her kitchen? Surely the kitchen—the workshop of the home—is as important to the housewife as the shop is to the industrial manager or the store to the storekeeper. Why not devote a campaign to better lighting in the kitchen?

That such a campaign has merit has been demonstrated by eastern central stations. Following a national survey in which it was brought out that the average wattage in the kitchen was but fifty-nine, the Ohio Public Service Company put on a campaign based on an installation of 150 watts. A total of 3,712 units was installed on a 30-day free trial. But one hundred and thirteen were returned. Successful campaigns have been put on in other cities and have resulted in an increase in business for central station, contractor-dealer, jobber and manufacturer.

Now is the time when such a campaign should be under way. The housewife is more dependent upon artificial illumination for her work than at any other time of the year. Western power companies would do well to secure the cooperation of other branches of the electrical industry in their respective localities and immediately organize a campaign for better illumination in the housewife's workshop.

Need for All-Year Slogan for Electrical Industry

THE trade slogan has come to be recognized as a necessity. It is used by all branches of industry and is capitalized heavily as good will. Many such slogans are admittedly of great inventory value and are so considered in the transactions of corporations and companies.

The electrical business, almost alone, has failed to select an appropriate trade phrase, one which could be easily assimilated by the public and which would serve definitely to fix in mind the value of electric applications. Some attempt has been made along this line in recent months by the Society for Electrical Development but the phrase selected has not been widely applied. This is no fault of the Society nor of the phrase but may indicate its only partial acceptance by those members of the industry most concerned.

It has been suggested that the phrase "Give Electrical Gifts" has many advantages for this purpose in that it is short, easily remembered and applies only to the electrical business. It also carries a message which is of application to everyone in the industry, for every manufacturer, jobber, dealer, central station and engineer can conscientiously promote this message and can benefit incidentally therefrom. It can be applied alike by the contractor-dealer and all merchants dealing in electrical goods and it carries with it no reflection against other equipment. While this may or may not be the ultimate solution of the situation it is well worthy of consideration.

CURRENT COMMENT



No stones are being left unturned by the advocates of municipal and state ownership in Washington. Already organizations have been formed for supporting

Agitation for Municipal Control in Northwest

the state ownership bill which will be placed before the voters of that state next November. While much emphasis is being placed on the state-wide movement, the past two weeks has witnessed a concentration of effort on two purely municipal projects, one at Bellingham and the other at Aberdeen. As stated on another page in this issue, the Bellingham election was lost by the municipal ownership propagandists, while the Aberdeen election went heavily in favor of city control of the power business.

Exemplary of the interest displayed in these two elections by those in control at Seattle are the following extracts from an editorial in the Seattle Post-Intelligencer:

In both cities the enemies of public ownership are extremely busy circulating arguments.

It should be quite difficult for these anti-public ownership advocates to controvert the exceedingly simple point that rates in Seattle and Tacoma, with municipally owned competitors in the field, are much lower than in Bellingham and Aberdeen, where private companies hold a monopoly.

Seattle's friends of municipal ownership find keen interest in the Aberdeen and Bellingham elections. These will offer at least a temporary showing of the temper of the people of the state generally toward the great power fight that will be the big state-wide issue in the fall of 1924.

Should Aberdeen and Bellingham join in with Seattle, Tacoma, Centralia and Ellensburg on a state program of public ownership and conservation of our hydroelectric resources, we shall one day see all of Western Washington "tied in" with a great public superpower system.

The Post-Intelligencer trusts that the voters of Aberdeen and Bellingham will on next Saturday determine to conserve the state's greatest natural gift for all posterity.

The other side of the question is upheld by the Anacortes (Wash.) American, which roundly scores the activities of the Seattle interests in behalf of the elections in the two smaller cities. This paper says:

Determined if possible to create a sentiment for state ownership of hydroelectric power sufficiently strong to place a recently drawn bill providing for it on the ballot at the next general election with some chance of success, Seattle is sending out its officials to various parts of the state to urge the adoption of the plan formulated by the socialists in the administration of that city, backed by the property holders who are not socialists but who are wearied of the constant call for more money for power development, and who can see no relief from still higher mounting taxes unless the people of the state can be induced to take over the project, and include in it provisions for taking over all power projects or eliminating privately owned power companies by low rates made possible by meeting losses out of state or district taxes.

D. W. Henderson, superintendent of the Seattle municipal traction system and of its power department, urged the adoption of the plan before the state convention of insurance

agents at Bellingham last week. He pointed out that Seattle and Tacoma are now linked together in a municipal system, and with Everett, Skagit County and Bellingham forming part of a state power district, all competition can be eliminated and the power companies driven from the district or the state if the system is extended to other parts of the State of Washington. He estimates the aggregate value of the holdings of private power companies in the state that must be taken over or "eliminated" at \$100,000,000.

Under the proposed statute the state would be divided into districts, each district headed by a board of four commissioners with a salary of \$6,000 each, and the commissioners to be given absolute power to take over or develop power projects in its district, with the backing of all taxable property in the district for any hare-brained scheme the board might adopt.

The plan promises to repeat on a much larger scale for the state and districts into which it may be divided, the experience of Seattle in its Skagit power development.

Indulgence in sentimentalities and the avoidance of the real facts of the case characterize the following extract from an editorial in the Seattle Post-Intelligencer:

Regard electricity as a gigantic slave, working for humanity.

So regarded, it is seen as the mightiest slave that ever strode the earth.

This gigantic slave can be made, by proper action NOW, to work entirely for mankind. To work, cheaply and well, for women in their homes, men in their factories and railroads.

Or this most powerful slave can become the standing army of a small financial oligarchy; an army keeping the people in subjection to a degree the world has not yet seen.

Most of our electrical development, thus far, is in private hands. And already we have felt the ruthlessness of the control which it effects.

But we are barely at the beginning of the Age of Electricity. We still can act to save ourselves, to benefit ourselves and our children. If Washingtonians look ahead and realize what electricity means, Washington will take charge.

Gross misrepresentation of facts would appear to be the basis for the touching picture of an Indian squaw busily engaged in preparing a meal over an electric range in the wilds of Ontario, as described in an editorial in the

Misrepresentation of Pertinent Facts Unfair San Francisco Call. It is such misrepresentation that makes the task of convincing the public of

the fallacy of municipal ownership doubly hard. An investigation of the conditions in Ontario brings out the fact that nowhere is electricity sold to the domestic consumer as cheaply as one cent per kilowatt-hour. We doubt if any municipality or private company in the country is able to retail electricity for domestic purposes at such rates. The editorial in question follows:

Niagara Falls furnishes electric power to the people of Ontario, Canada. It is developed by the Hydro-Electric Power Commission, which is a government body. Martha

Bensley Bruere told a few things about electric power in a recent Survey:

"It is sent across the province to the little towns and to many of the country districts at rates which are sometimes less than one cent a kilowatt-hour. This means that it is cheaper to light a farm house with electricity than with kerosene; cheaper to run an electric cook stove than a coal range; and that vacuum cleaners, fans, toasters and washing machines, as well as cream separators, corn choppers, pumps and electric milkers, are within the reach of practically everybody. . . . It is a bit startling to see an Indian woman, even one wearing something approaching modern dress, whose blanket wrapped mother had held deer meat on a pointed stick over the fire at the tepee door, preparing to buy an electric range."

Indians in Ontario are "luckier" than California housewives. But it ISN'T luck. We, too, can have those things if we want them badly enough to understand that public ownership ought to work as well here as it does in Canada.

Information of a nature that will do much toward combating the wave of municipal ownership which appears to be sweeping the Pacific Coast is presented

Municipal Ownership Is Declining

in an editorial in the Casper (Wyo.) Tribune which comments on the apparent decline of municipally owned and operated light plants as shown by the United States Census figures. The following pertinent facts are brought out in the editorial:

From a nation-wide survey by the census bureau respecting public and private ownership of utilities, these facts respecting electric light plants are revealed:

The majority of municipal plants are in towns of 1,000 population or less, where funds cannot be raised except by pledging public credit.

The municipal plants produce only 4 per cent of the electricity generated in this country, and this percentage is constantly decreasing.

The average rate of all municipal plants is more than twice as high as the average rate of all companies reported by the census.

There has been a great increase in the number of municipal plants which have shut down their generating plants since 1917.

Of the population of the United States served with electricity, the companies serve 93.8 per cent and the municipal plants 6.2 per cent. The average city tax rate in 1921 in cities over 30,000 having municipal plants doing commercial business was \$19.31. The average city tax rate for the non-municipal plant cities nearest in population to the above was \$15.50. Exempting municipal plants from taxation necessarily means that the tax rate on other property must be increased.

The public is prone to overlook the important item of taxes when consideration is given to the arguments of advocates of municipal ownership. They

Relation of Rate Reductions and Taxes

forget that a decrease in rates effected by taking over the power business in a city is reflected by an increase in taxes to make up for those taxes which were formerly paid by the utility. This point is brought out in the following editorial from the San Francisco Bulletin:

Our "progressive" politicians blame Governor Richardson for everything untoward that happens in California. Lieutenant Governor Young, for example, in a speech denouncing Richardson's tax-reduction policy, points with pride to the fact that in Los Angeles County taxes this year have increased more than \$8,500,000, or 25 per cent. No doubt the financial difficulties of the municipal power bureau contributed to that result, for in San Francisco there has been no increase:

But while laying on Governor Richardson responsibility for every increase in county taxes, why did not Mr. Young give him credit for the enormous decreases in public utility rates effected by the Railroad Commission during the current year?

Rates of various public utilities in California were reduced during the fiscal year ending June 30, 1923, more than \$8,100,000, based on the 1922 revenue of those utilities, according to a statement just issued by the Railroad Commission. Gas and electric rates were reduced \$5,100,000.

Railroad freight and passenger rates were reduced \$3,000,000 by the State Commission and \$12,000,000 by the Interstate Commerce Commission.

The statement adds:

"In addition to the foregoing reduction, the reductions made by the Railroad Commission during the previous fiscal year continued in effect, adding many more millions to the amount saved to the users of California utilities, all of which may be traced directly to regulation of those utilities in the interest of the general public."

State taxes are paid chiefly by the public utility corporations, who in turn collect those taxes in rates from the public as an expense of doing business. An increase in state taxes means an automatic increase in utility rates.

In face of those reductions, who can say that the policy of regulation of public utilities is not a success in California?

Regulation in California is real and effective and it protects the public interest.

In the Nov. 15 issue of the Journal of Electricity there appeared an item in this section entitled "Ontario Held Up as Example of Public Ownership," in which the Seattle Times was credited with the authorship of an editorial complimenting the Canadian province on the showing it had made and recommending a similar scheme for Washington. The quotation was incorrect. The editorial in question appeared in the Seattle Post-Intelligencer, which is a strong municipal ownership journal. The Times cannot be placed in this category. It is deserving of the support of the electrical industry for the stand it has taken against this question.



B. C. Employees' Magazine.

EVENTUALLY! WHY NOT NOW?

THE Public Service Company of Colorado furnished the lights and electricity for this huge Christmas tree displayed in the Denver Civic Center.



Political Adventuring with the Public's Pocket-book

By John A. Laing*

Vice-President, Pacific Power & Light Company, Portland, Ore.

SO-CALLED public ownership and control of various essential industries provides one of the chief subjects of active political discussion today. Probably none is more frequently heard, and none is farther-reaching in its implications. The question is not new, nor are we entirely without practical experience with such proposals. The significance of the present agitation lies in the increasing diversity of these proposals and in the increasing volubility with which they are being advanced as panaceas for real or imagined ills.

On the national scale these include the nationalization of railroads, the shipping business, the express business, the telegraph, the long distance telephones, the anthracite and bituminous coal mines, the petroleum industry and the manufacture and distribution of gasoline and lubricating oils, the manufacture and sale of fertilizers, the meat packing industry, the steel industry and others in varying degrees of intensity, including last but not least the marketing of wheat at a price to be guaranteed to the farmer in advance of the planting of his crop.

Within state lines these proposals include setting up the state as universal landlord through the medium of the single tax, the operation of the banking business, the insurance business, grain elevators, flouring mills, cement plants, power plants and transmission lines, telephone lines, street and interurban railways, paving plants, gasoline stations, ice plants, bakeries, wood-yards, food and produce markets, employment agencies, and others too numerous to mention. All of these and many other industries affect the public interest to a greater or less degree, and as such await only the legislative fiat to be classed as public utilities.

While the electrical industry is immediately concerned with this movement, if we may call it that, in its relation to its own business, its members scarcely need to be reminded that as business men and as citizens of their respective communities, they are even more concerned with this program in its broader aspects and manifestations.

At the outset let me suggest that the terms "public ownership" and "public control" in this connection are deceptive and misleading. In a broad sense all property is owned by the state and subject to its control. The police power, the taxing power, and the power of eminent domain, among others,

WILL the general public place any faith in an organization which hires and fires a new set of executives every four years? Is politics a good business manager for a public utility? These are some of the phases of public ownership which Mr. Laing discusses in this article.

with all of the vast fields of governmental activities which these connote, suggest how completely public ownership and public control now exist. Of increasing significance in this connection is the conceded legal power of the state to expropriate on the death of an individual, such portion of his estate as the legislature in its wisdom may see fit to demand, while the power of the Federal Government also to impose an inheritance tax has been sustained. As a result we find from figures recently published that the amount of property taken annually in state and federal inheritance taxes has jumped from \$40,000,000 in the year 1917 to \$210,000,000 in the year 1921, the tremendous increase being due not so much to increase in wealth, as to an increase in the exactions imposed by the state and federal governments upon the transfer of such property. Apparently there is no limit to the extent to which this process may be carried, even to the point of complete confiscation, save only as the sober sense and the good morals of the community may be asserted to put on the brakes.

But in a much more tangible sense, the property of the great industries and public utilities of the country is publicly owned today. By the public we do not necessarily mean the political framework which we have built up to direct our governmental affairs, and are constantly doctoring as this or that group may momentarily persuade us to apply their pet medicine. Nor do we mean the temporary incumbents of political office, local or national, whom we revere today, perhaps, and cast into outer darkness tomorrow. Nor do we mean this or that bloc, or grouping of blocs, which by one means or another may succeed in carrying an election today only to lose it to a like accidental grouping tomorrow, in each case probably on issues so confused that no two citizens will agree in their explanation of the result.

Rather we have in mind the great body of our citizens who know little about the intricacies of politics, and crave only an opportunity to earn a decent living, to acquire a home, to advance themselves and their children in the community, to save a competence for the rainy day, and to protect their dependents against disaster by life and other insurance. Billions of dollars of such trust funds are invested by the insurance companies and by the savings banks in the bonds of the railroads and public utilities of the country. Hundreds of millions of dollars of the stocks of these industries are owned outright in

*Extracts from an address before the Pacific Coast Section, National Electrical Supply Jobbers' Association, Gearhart, Ore., Sept. 7, 1923.

small share lots by the customers and employees of these utilities. In a very real and practical sense these utilities are today publicly owned, and participation by the public in the management of such utilities is undergoing a tremendous development at the present time, resulting both in the greater democratization of these industries and in providing a vigorous stimulus to efficient management.

Private Operation Under Public Regulation

As to public control, what do we find at the present time? In the railroad industry we have absolute control of rates, of classifications, of service, of security issues, of safety devices, of hours of labor and working conditions, and to a very large degree of the wages to be paid to the huge army of railway employees. In the public utilities, we find like control of service, of rates for service and of rates of return, based not on capitalization or watered stock but primarily upon what the regulatory authority considers "prudent investment"; control of financing, of rules to prevent discrimination or improper practices, of standards of construction and operation, and of the extension of lines and service. Public control, as evidenced by the foregoing and by the direct participation of the public in the ownership and management of these industries, by its opinions as voiced or reflected in the public press, and by the statutes and numerous commissions or boards designed to protect the public interest, would seem to exhaust the possibilities in this direction. If not, or if greater control is required in any instance, the power is there to be exercised as the occasion may demand.

It is clear, therefore, that what is desired in the present agitation for public ownership and control is in fact neither of these conditions, but the substitution of the political or governmental organization as the business manager of these great enterprises. In other words, it is sought to transfer the responsibilities of management from regulated private enterprise in which the public interest is fully represented, to that small portion of the public whom we hire or fire every two or four years primarily with other objects and purposes in mind. Why should such a course be necessary and what good may we expect of it?

Let us assume that as to any service essential to the public interest, which regulated private industry may be unable to perform adequately, the intervention of government may be necessary and proper. Yet even here the greatest caution should be taken

to make sure that the inability of the regulated private industry is not caused by artificial and unwarranted difficulties of the government's own making, and equally important, that governmental intervention will not be beset with difficulties or evils of even more serious nature. Private industry cannot be expected to function to best advantage if burdened with unnecessary restrictions and handicaps within the power of the public to remove. As President, then Governor, Coolidge once said of the railroads, "They have been so restricted lest they do harm, that they have been unable to do good."

Short-time or unduly restrictive franchises, unscientific and excessive taxation, and the encouragement or allowance of destructive competition in non-competitive fields, are instances of conditions which add to the difficulties of financing and operating the ordinary utility industry, to the resultant injury of its patrons and impaired development of the industry. Common sense would seem to dictate first the elimination of such artificial bars to progress, before the full functioning capacity of the regulated private utility can be fairly determined.

Notwithstanding these and other handicaps the great utilities of the country under regulated private management have gone ahead and served their communities adequately and well; they met every call made upon them by the abnormal war and post-war conditions and are today moving along at a more steady growth than any other industry in the country.

If you will observe the industrial development on the Pacific Coast alone, you will find that hundreds of millions of dollars are today being put into new plants and facilities of the regulated private utilities for present and future needs, and under conditions which assure the highest possible efficiency and conservation of available resources. In like manner the other utilities of the country will be found to be meeting their responsibilities. Whatever other reason may be advanced, political intervention in the utility industry cannot be justified by any lack or threatened lack of adequate service or facilities.

Can Political Operation Lower Service Costs?

There remains only the contention that political operation will provide the service at lower costs. Insofar as this is based on the elimination of taxes or governmental charges now paid by the regulated companies, the fallacy of the contention is obvious. It signifies merely the saddling of this loss of revenue



Storm in S. F. Daily News.

Public service corporations must take definite steps if they are to overcome this attitude on the part of the public press.

upon other taxpayers and increasing a present well-nigh intolerable tax burden. Yet we are witnessing in the State of Washington today the beginnings of a most ambitious attempt on the part of certain politico-industrialists to bolster up a questionable venture in the power industry, by unloading it upon the taxpayers of the entire state, free from any of the responsibilities now carried by the regulated private industry they seek to destroy, and which now pays a large share of all the state's taxes.

As to the claim that the government can finance at lower costs than are now available to private industry, through the medium of tax exempt securities, the injustice and evils of such exemptions are becoming so flagrant and so apparent that it is not to be believed that the citizen will tolerate the condition much longer. Without such exemptions, for which you and I pay the price in our income and other tax bills, the political management of industry would pay the going cost of financing as does the private owner. Moreover, the favorable interest rates on bonds for legitimate governmental purposes will cease to be available should these purposes be generally disregarded.

As to the economy and effectiveness of governmental operations in general, as compared with regulated private management, informed opinions will not seriously differ. The responsible officials of our important industries have reached their positions, not because of their popularity or affiliations, but as the result of years of intensive training and experience, and of constant and strict accountability to competent judges of their performance. Such men do not ordinarily go into political positions; nor, when they are requisitioned into governmental service, are they encouraged or often permitted to direct their activities strictly upon business principles. Misjudged expediency of the moment, and "playing the game" with or for their political associates or superiors, are usually far more important considerations than genuine economy or efficiency. Few political campaigns have been fought, and fewer won, on the straightforward issue of impartial and efficient administration, nor has the occasional demonstration of such a prosaic fact assured the retention of capable men in public office. Experience has demonstrated, moreover, that the effect of political control upon the rank and file of those employed in such industries, is even more disastrous from the standpoint of effective public service.

Limitations of Public Ownership

Permit me to quote in this connection, from the recent address of O. C. Merrill, Executive Secretary of the Federal Power Commission, an official pre-eminent for his services to the country in connection with the conservation and administration of our federal resources, and who has been identified with governmental service for many years. Discussing certain phases of the water power situation at the present time, among others popular ignorance of the cost of bringing the developed hydroelectric energy to the current-consuming devices of the consumer, and the agitation in many quarters for so-called public ownership, Mr. Merrill said in part as follows:

"I am not a partisan of private ownership nor of public ownership as such. It may be well that, irrespective of results, these two systems should be tried out side by side until their comparative merits can be established to general public satisfaction; but if so, their merits should be determined on a really comparative basis, with public ownership measured by precisely the same standards as are applied to private ownership.

"We should not, however, overlook the necessary limitations that surround public ownership. Its field of operation is limited to the territory over which the particular public agency exercises jurisdiction. Even were it state-wide,—something not yet attempted in the United States—it still would have a field far less than many of our existing power systems already cover. It cannot, therefore, irrespective of efficiency of management, secure the full economies of group development over wide areas. This, however, is among the least of its limitations. Until the character of our political institutions is radically altered, it will never be practicable to secure and retain in public management the character of personnel which private management can secure, or to free public operations from political control."

Mr. Merrill's statement is equally applicable to the whole field of industrial activity into which the propagandists for this or that form of governmental intervention would plunge the nation. The recent experience of the federal government in the operation of the railroads, its present unsatisfactory experiment in the shipping business, the complete paralysis of industry in Italy under governmental auspices that brought about the Fascisti revolution under Mussolini, the tacit admission of the failure of the Bolsheviks' program by their calling in private enterprise to save Russia from complete disintegration,—all of these and the numerous other practical tests of governmental participation in industrial and commercial enterprises, should serve as adequate warnings of what may be anticipated from any further encroachment by local or national governments in the field of private enterprise.

One of the grievances against the British Crown set forth in the Declaration of Independence is not irrelevant to this discussion. Said the liberty-loving patriots, in thus founding a new nation: "He has erected a multitude of new offices, and sent hither swarms of officers to harass our people, and eat out our substance."

Public service of the highest type is rendered by every well-conducted industry, nor are we likely to secure as effective service from a multitude of new offices, or from swarms of officers. The dangers of being harassed and eaten out of substance by political adventurers with the public's pocket-book are as real and as obnoxious today as were these evils to the colonists 147 years ago.

This western country of ours owes its development to the spur of individual enterprise and initiative. From the days of the covered wagon to the present age of the flivver and the Pullman car, it has been the promised land of opportunity and reward for sustained effort. The social value to the community of preserving this spirit and this environment we cannot afford to lose. Nor may we reasonably expect our economic possibilities to be realized, or our wealth in industry, in population, or in wider markets for natural products, to be increased and extended, once we serve notice on those we invite to come, that industrial operations henceforth are to be a function of politics, rather than the province of individual enterprise under wholesome regulation.

The Manufacturers' Agent as a Factor in the Distribution Scheme

By E. A. Kincaid

Associate Professor of Commerce, McIntyre School of Commerce, University of Virginia

IN writing on the subject of methods of distribution some years ago, A. W. Shaw of the Shaw Publishing Company, publishers of "System," pointed out that the manufacturers' agent was at one time a prominent factor in what was known as the orthodox method of distribution. He explained that the old practice of moving goods from the hands of the manufacturer through manufacturers' agents to jobbers and thence to dealers had lost a good deal of its force due to the disposition of manufacturers to simplify the processes of distribution and sell direct to the jobber. Some years later L. D. H. Weld, head of the commercial research department of Swift and Company, wrote of the remarks of Mr. Shaw and then proceeded to show that while the manufacturers' agent is no longer so important as formerly he is still important. Mr. Weld then proceeded to give an account of the place of the manufacturers' agent in present day distribution of various lines, including the hardware industry.

Now it happens that the conditions that account for the persistence of the manufacturers' agent in the distribution of hardware are strikingly similar to those which account for the position of the manufacturers' agent in the electrical industry. Let us, therefore, consider the hardware industry for a moment. In the first place, many hardware manufacturers produce either a single article or a single line of articles. For example, one manufacturer produces nothing but saws, while another produces nothing but scissors or wrenches. In the next place, many manufacturers of hardware have but a small output and their plants are located far from the market centers of the country. Because of this last named condition these manufacturers find it difficult to keep in touch with trade conditions.

A large manufacturer of hardware, one who produces a wide variety of goods, may find it wise to maintain a sales organization to reach jobbers. If so, his sales organization will take the place of the manufacturers' agent and his sales organization in reaching the jobber. Such an organization may be powerful enough to go over the head of the jobber direct to the retail trade. Mr. Weld points out that one large manufacturer of hardware reaches the large retailers with his own sales organization and leaves the small retailers to the jobber. Where a manufacturer develops his own sales organization

REMOTENESS from manufacturing centers has made the Pacific Coast a difficult market for the manufacturer of electrical products. One of his chief lieutenants in solving his distribution problems has been the manufacturers' agent. Scouts for new business is the term that Mr. Kincaid uses in describing this important intermediary between manufacturer and consumer.

and finds his own line too narrow, he may arrange for his salesmen to carry related lines of other manufacturers. In this way the selling expenses per unit of goods sold from the manufacturer's own factory will be reduced.

If we transfer our attention from the hardware field to the field of electrical products, the likeness of the two is apparent. Many manufacturers of electrical products make but one article or a single line of articles. Thus, one manufacturer may turn out nothing but knife and safety switches, while another produces nothing but wire and cord. Furthermore, many manufacturers of electrical goods produce goods only in a relatively small volume, and their plants are often located far from the market centers of the country. Such manufacturers find it difficult to keep in touch with the market conditions affecting their products. These many small manufacturers cannot afford to maintain a sales organization sufficiently large to cover the markets of the nation.

Under such conditions it is logical for the manufacturer to look to the manufacturers' agent. The latter can supply him with a ready-to-use sales organization, a very definite knowledge of the market for the manufacturer's goods in his territory, and he can, moreover, give the manufacturer some share of that market; for the manufacturers' agent knows the reputable jobbers in each jobbing center, he knows what the consumers of the territory want and require in the various lines of electrical products, and he also knows the competitive conditions and just how the business desired by the small manufacturer can be obtained. Thus it happens that for a large number of manufacturers of electrical products the manufacturers' agent is the logical intermediary between the manufacturer and the jobber.

Many of the manufacturers' agents interviewed by the writer stated that they were in a position to prove that they could take care of the distribution problems of their principals at a lower cost per unit of goods sold than the manufacturer could with his own sales organization. There is not the least question about the truth of these statements. Manufacturers know they are true, and that is just the reason why they use manufacturers' agents.

The foregoing resumé of the economic factors that account for the manufacturers' agent applies to the hardware industry and to the electrical industry.

It also applies to conditions that are more or less general throughout the country. The Pacific Coast is in no special sense an exception to this statement. On the other hand, the economic conditions that cause manufacturers to make use of the manufacturers' agent are particularly pronounced on the Pacific Coast. These factors may be stressed to good advantage:

- A. There is very little manufacturing of electrical goods in the Pacific Coast territory.
- B. The great bulk of the electrical products sold there come from manufacturers located east of the Mississippi River.
- C. The major portion of these manufacturers have but a relatively small output and that is confined to a fairly narrow line or even to one or two products.
- D. These manufacturers are not strong enough to maintain sales organizations of their own.
- E. The jobbing centers of the Pacific Coast territory are widely scattered, and the expense of maintaining traveling salesmen in sufficient number to cover the great distances between cities is often out of proportion to the volume of sales realized. (See map accompanying the first installment in this series, Journal of Electricity for Oct. 15.)
- F. Nevertheless, no manufacturer can afford to neglect the market of this great region because of its present attractions and also because of its potentialities.
- G. The resources of the Pacific Coast territory, its buying power, and the characteristics of the consumer demand are almost totally unknown so far as the eastern manufacturer is concerned.
- H. There are also certain traffic problems involving rates, classifications, routes and reshipments which the manufacturer must take into account.
- I. When it comes to the selection of jobbers and the formation and maintenance of the necessary jobber contacts, the manufacturer is even less well equipped to solve the problems of distribution.

The whole situation in the Pacific Coast territory, so far as the manufacturer is concerned, may be described by one word—remoteness. Remoteness makes for a lack of definite and positive grip on the situation. It makes for an absence of that intensiveness of control, which in turn means waste and inefficiency.

It might be said that the jobber alone is in a position to supply these missing elements. Certainly the jobber thinks he is. On the other hand, the manufacturers' agent is in a position to give plausible reasons why the jobber cannot meet the situation. Looking at the subject from the point of view of the basic principles involved, it would seem that control of distribution must come from the manufacturer and be directed by him all along the line to the final consumer. Such control as will mean the sure and efficient functioning of distribution cannot be delegated with safety. No more can it emanate from the jobber and be directed from him toward the manufacturer on the one hand and toward the consumer on the other. Distribution that functions in the interests of the manufacturer must be controlled by the manufacturer. If this is not the case, why, then, have certain powerful electrical manufacturing concerns taken over the jobbing function in Pacific Coast territory by means of subsidiary corporations?

Manufacturers' agents constitute a sort of light cavalry that scouts for business and gets it because it moves quickly and effectively. They function in the interests of the manufacturer, and where they sell through jobbers alone, manufacturers' agents are always on hand to see that the jobber is also functioning properly. Such an arrangement certainly makes for that definiteness in control which is so essential to the interests of the manufacturer.

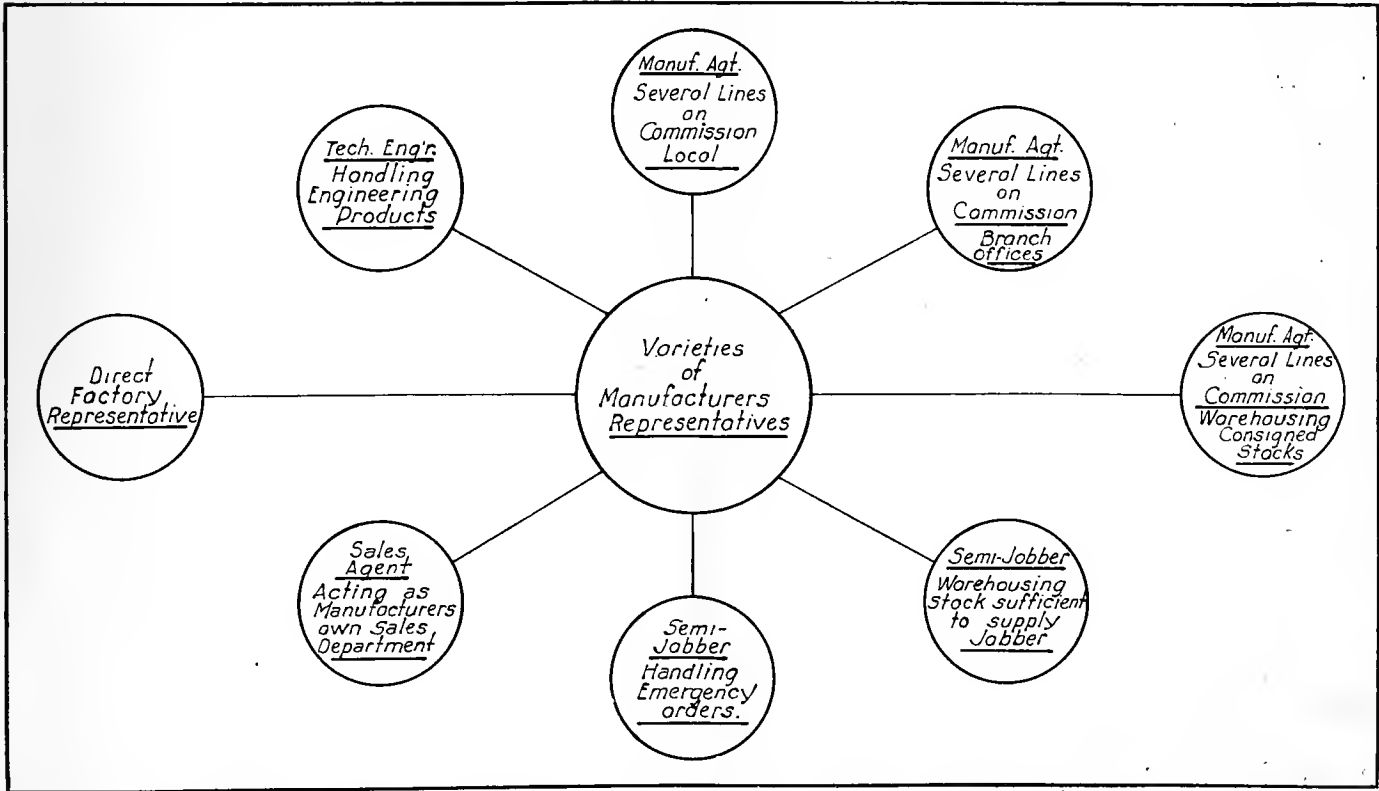


Diagram showing the varieties of manufacturers' representatives.

Relations with the Manufacturer

The manufacturers' agent becomes the manufacturer's sales organization, bridging the gap between the factory and the jobber. He usually carries from six to a dozen lines that have been selected with great care so that all of them together form a compact whole. These lines must fit together with a good deal of exactness in order that the salesmen sent out by the manufacturers' agent may well serve the interests of the jobbers or others to whom he may sell. Thus it happens that the manufacturers' agent is not so much concerned about the manufacturers that he represents as about the compactness and inter-relation of his lines. Thus, a typical manufacturers' agent may have, for example:

- A. Portable cord
- B. Metallic conduit
- C. Knobs
- D. Non-metallic conduit
- E. Tape
- F. Switches
- G. Wire and cord
- H. Cable
- I. Boxes

Each line is, perhaps, the product of a different manufacturer, and the agent is, therefore, under contract with as many manufacturers as he has distinct lines. No two lines are competitive, for the manufacturers' agent does not frequently represent competing manufacturers.

The contract between the manufacturer and his agent is not a matter of first importance. Usually these contracts cover such matters as the territory over which the agent shall have exclusive jurisdiction, the commissions that he shall receive, exclusive representation and other matters of less significance. These contracts are usually subject to termination by either party on thirty days' notice. While this might appear to be a serious matter, in practice it is not, for the agent relies upon the good will of the manufacturer rather than upon the terms of the contract. The agent knows that a manufacturer can break his contract almost at will with impunity, and he is willing that this should happen if his services to the manufacturer are not strong enough to keep the contract in force. If there is not sufficient good will to make the relationship vital, then a contract certainly would have little significance.

Extent of Territory

The territory in which the manufacturers' agent has exclusive selling rights for a given product or line varies with a number of considerations. Generally the territory of the agent is large because the population is scattered over several states and concentrated at certain well known centers. In some cases the territory includes the three coastwise states, while in others it may include only that part of California dominated from Los Angeles and the hinterland of Arizona and Nevada. Again, it may include the three coastal states and the territory back of them, thus taking in part of Montana and part of Wyoming, all of Nevada and Arizona, and part or all of New Mexico. Just what area will be

included in the manufacturers' agent's jurisdiction will depend upon:

- I. The way in which the general sales agent of the manufacturer has laid out the whole country. It may happen that there is a territory dominated by Denver with an agent there and still another dominated by Minneapolis.
- II. Railroad rates and ocean transportation facilities.
- III. The nature of the product.
- IV. The distance from Pacific ports to the remoter parts of the territory.
- V. The population included within the territory and the volume of sales to be had from that number of people.
- VI. The facilities and capacity of the agent's sales organization and his knowledge of his territory. As business expands, the boundaries of the territories assigned to a given agent may be altered.

Services to the Manufacturer

First and foremost, the manufacturers' agent undertakes to serve the manufacturer in the chief problem, that of getting distribution of his factory output. Manufacturers' agents maintain that they provide this service and that they do it with more efficiency and at a lower cost than any salaried substitute could possibly do it. They will assure you that compensation in the form of a commission on sales will invariably get better results for the manufacturer than a factory branch under a salaried representative. In the next place, the manufacturers' agent will take pains to explain that he is a specialist who concentrates all his energy on a fairly narrow line of products and thus becomes an expert in all problems relating to the distribution of those products. Again, he will have a staff of highly specialized salesmen who know the territory and cover it with minute care; and it is true that the more competent manufacturers' agents receive frequent and elaborate reports from their salesmen in the fields.

There are yet other important services rendered by the manufacturers' agent to his principal. He may provide warehouse facilities and carry either emergency stock or stock certain lines somewhat fully, filling orders from jobbers throughout the territory. In many cases the agent does not perform this service and will carry no stock at all or merely emergency stock. In the latter case all orders obtained from jobbers are filled by the manufacturer and shipments are made direct from the factory to the jobber or other customer.

It must be kept in mind that the jobber frequently carries competing lines of goods. In view of this fact, the manufacturers' agent is in a position to render effective service to the manufacturer. He often has a number of salesmen who do excellent sales promotion work and thus expand the volume of business for both jobber and manufacturer. It may happen that the competing line or lines carried by the jobber are unsupported by any such effective work on the part of a manufacturers' agent. If so, it would follow that the jobber will naturally tend to favor the line that gives him the best volume of sales.

The salesmen of the manufacturers' agent often do most effective field work with consumers, engineers of power companies, architects, dealers and industrial corporations. The results of all such work

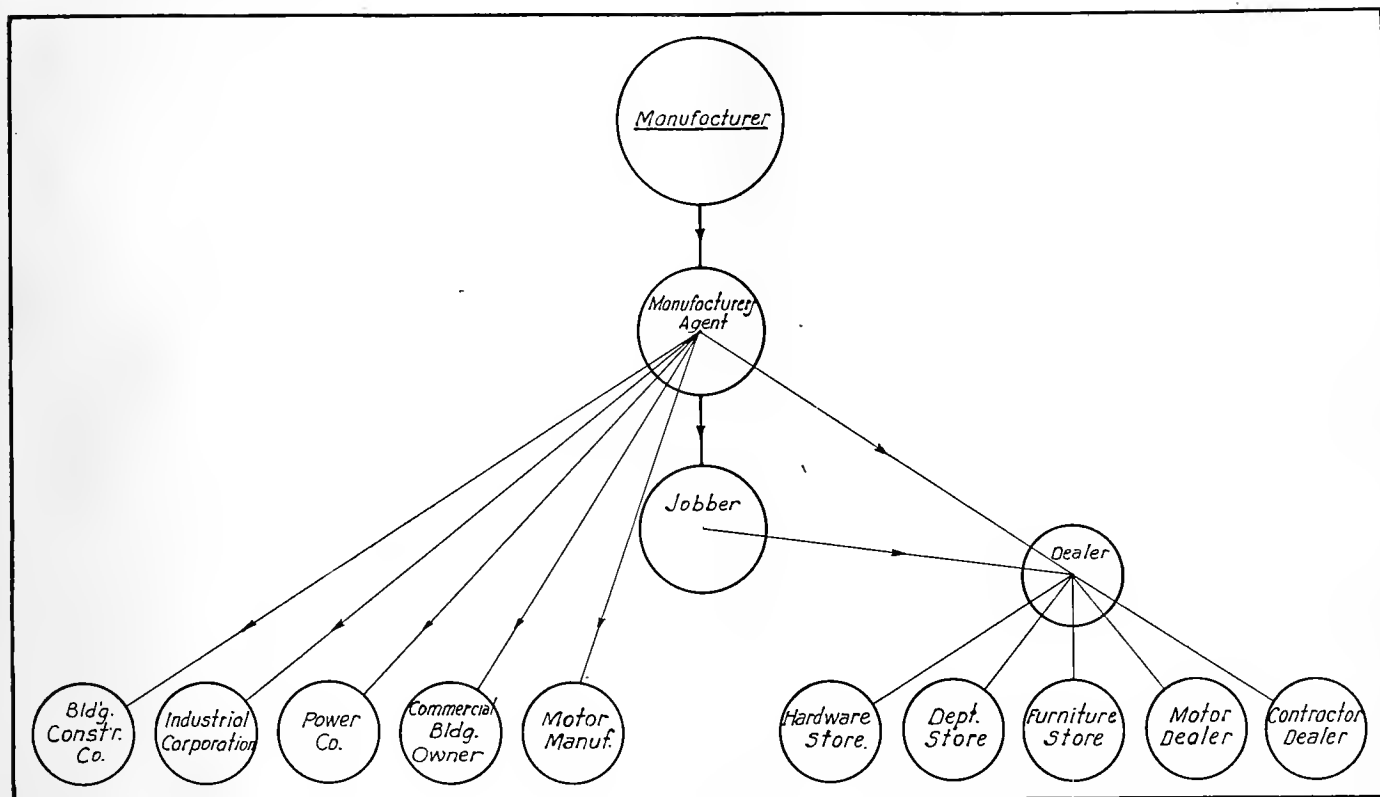


Diagram showing the place of the manufacturers' agent in the distribution of electrical equipment.

are felt in the increased sales made by the jobber, and he thus comes to understand that the manufacturers' agent is one of his best allies. In this connection it might well be explained that this work is carried on by the manufacturers' agent for two very good reasons. His own commissions expand and his standing with his principal is improved as the volume of sales made in his territory is increased. But fully as important, if not more so, is the good will that is built up for the manufacturers' agent. Certain of these agents in Pacific Coast territory have carried on this work so effectually that one might very well assert that the loss of a line or so by the action of the manufacturer would not materially affect the relation between the jobber and the manufacturers' agent. The service and the backing that is given to his lines by the salesmen of the agent become so valuable to the jobber that he will change lines rather than lose the connection and the support of the manufacturers' agent.

Where manufacturers' agents have realized the possibility of doing effective field work in behalf of the jobber's volume of sales as well as in behalf of the manufacturer whom he represents, their position in the trade has become well-nigh impregnable. If the tie between the manufacturers' agent and the jobber rests upon this service and sales promotion work by the agent, few manufacturers are strong enough to take their lines away from the agent in the face of expanding sales that may even justify a factory branch. Thus it has come about that the more alert among the manufacturers' agents have developed such firm connections with their own customers as to have a sort of insurance against the risk of losing a line because of the vaulting ambition of the manufacturer.

Manufacturers' Agent vs. Factory Branch

The disposition of the manufacturer to break away from distribution through an agent and to accomplish this work through a factory branch is generally the result of a feeling that the existing volume of sales, as developed by the manufacturers' agent, is good, so good in fact that the volume may be much better if a factory branch is established. The facts of the matter sometimes run just counter to this fond expectation, for in breaking connections with his agent the manufacturer at least incurs the risk of irritating all the jobbers and others to whom his agent has been selling. That there may be such irritation is by no means far-fetched. Reference has been made in previous articles to the fraternal spirit that exists among distributors in Pacific Coast territory. This is certainly a factor that has to be reckoned with and the various distributors know it. For this reason they spend no little time and thought in fostering this relationship. But quite aside from this, it is necessary for the manufacturer to recognize the strong element of good will that may exist on the part of jobbers toward manufacturers' agents. This good will is the result of the field work of the salesmen of the agent, and the jobber knows that it means enhanced sales and increased profits for him.

To be sure, not all manufacturers' agents are in a position to carry on such active and effectual field work, and not many of those who are in a position to do so have utilized the opportunity. The majority of manufacturers' agents are in a class that has not made the most of the fact that they are on the ground while the manufacturer is far away. Thus it comes about that many manufacturers' agents are practically defenseless when confronted with the manufacturer's plan to do away with an agent and

sell from the factory direct to jobbers or else sell from a factory branch direct to jobbers. In most cases such a change in methods of distribution must be given careful consideration. A factory branch cannot expect to hold all the business that a manufacturers' agent has built up. Some years may be required to build it up to the volume obtaining before the changed methods of distribution came into effect. Perhaps the step may never be justified, for the costs of maintaining such a branch are sure to be considerable and the unit cost of distribution must be much greater, at least for a period, than it was when the manufacturers' agent was relied upon, for the latter has the advantage of allocating costs of selling over several active lines. Thus it may be said that other manufacturers help to maintain the agent and therefore support the cost of selling for each one whom the agent represents. This is particularly true where an agent takes on a new line. The cost of his organization must then be met from commissions realized on sales of older lines until the new line has become a money-maker for the agent.

Relations with the Jobber

Wherever possible, manufacturers' agents sell to established and regular jobbers. They pursue the line of least resistance, and this will mean distribution through regular jobbers wherever that outlet is available. In some cases the policy in this matter will be determined by the attitude of the manufacturer, for he may be inclined to do business with none other than regular jobbers. In this event the manufacturers' agent becomes a regular; but in event no jobber can be induced to take on a line new to the territory, the manufacturers' agent must form contacts with jobbers who are a shade off color with respect to regularity. Where this is impossible, then the agent must turn to dealers or consumers. The practice here depends upon the nature of the lines which the manufacturers' agent carries. It not infrequently happens that the jobber is already carrying some standard line upon which he and his salesmen and his trade are fully "sold." In this event the agent will meet with little encouragement.

It would not do to give the impression that all of a manufacturers' agent's dealings are with jobbers. As a matter of fact, they may sell to power companies, motor manufacturers, motor dealers, pump dealers, industrial corporations and to others. Just how the agent sells will depend upon the nature of his line, but what has just been said with respect to the jobber certainly obtains insofar as the so-called jobbing lines are concerned.

In deciding just what jobbers he will deal with, the manufacturers' agent may have some complex problems to work out. It so happens that in some localities the jobbers are found in two camps, association jobbers and those who are not in the association. It sometimes happens that there is a real preference on the part of the agent to do business with the association jobbers only, but such a policy may be unwise in other respects, due to the fact that adequate distribution cannot be had where the association jobbers are too few in number. In this event the manufacturers' agent must work out his policy

on the basis of the immediate situation with which he is confronted; that is to say, the association jobbers may be so powerful in a given place that it would be unwise to attempt to do business with other jobbers. On the other hand, non-association jobbers dominate the wholesale distributing business in some places, and in this instance the manufacturers' agent may safely do business with them.

As a representative of the interests of the manufacturer, the manufacturers' agent often maintains that the jobber is but poorly equipped. His salesmen are not specialists in any one line and in the nature of things cannot be, for the jobber's stock includes a large number of articles. It is obvious that good merchandising and effective selling often call for such specialized knowledge; otherwise the goods of a particular manufacturer are lost in the crowd. Their particular qualities are never brought to the surface, and a given article or line loses its commercial personality.

Counter to this situation stands the manufacturers' agent with a narrow line and salesmen who are specialized in the knowledge of it. It is also asserted, with some show of truth, that the jobber is primarily interested in his own sales and not in those of a particular manufacturer. He will, therefore, push the lines that give him the best volume of sales, other factors being equal, and this may mean that the lines of certain manufacturers receive little or no consideration. Where such a condition exists, the manufacturers' agent of the better sort is in a position to carry on field work that will build up the demand for a given manufacturer. From this it is reasoned that it is never to the interests of the manufacturer to attempt to eliminate the manufacturers' agent and sell directly to the jobber.

Where the manufacturers' agent carries a stock in his own warehouse he is in a position to supply the jobber with goods on short notice, and here we have yet another way in which the manufacturers' agent ties in with the jobber. In Pacific Coast territory it is not uncommon for a manufacturers' agent to have a warehouse fairly well stocked with the goods that he seeks to market for the manufacturer. The latter is generally producing at some point far removed from the field of activities of his agent, and it is not always possible for the jobber to wait for a shipment from the factory. Here the manufacturers' agent steps in and takes care of the situation to the advantage of both jobber and manufacturer. In the case of those agents who regularly supply the jobber's needs out of the warehouse, the jobber is spared the necessity of buying in large quantities and thus unduly increasing his inventory and tying up his working capital for considerable periods of time. It is clear that the maintenance of a warehouse by the manufacturers' agent serves to discourage the manufacturer to take any steps looking to the opening of a factory branch. The manufacturers' agent able to take care of jobbers out of his own warehouse is doing about all that a factory could do, and, in addition, he is concentrating his selling forces upon the lines which he carries in a way that no factory branch could be expected to.

Utility Service in a New Role

VERY often there is injected into the activities of a utility an opportunity to offer a service not commonly conceived as a part of its obligation to the community. Such unusual service, by its unique characteristics, serves to cement more strongly the bond of friendship and good will between the utility and the public which it serves.

Prior to the annual Fresno, Calif., District Fair in 1923, A. Emory Wishon, vice-president and general manager of the San Joaquin Light & Power Corporation, decided to have a display that would be sufficiently different to attract unusual attention and at the same time be of real benefit to the community and to the visitors to the fair. With this thought in mind, he arranged for a day nursery for babies and for the younger children who were brought to the fair by their parents. He believed that a day nursery would be of double value as an exhibit, for not only would it have advertising worth, but it would perform such a useful function for the parents who attended the fair that it would have a decided good will reaction.

In order to establish the name of the San Joaquin Light & Power Corporation in connection with the nursery, large signs in the form of the company's advertising shield were mounted on posts which were arranged to represent high tension transmission poles. A large cloth sign announced that the nursery was operated by the company and that there was no charge for the use of the privileges. Other signs contained invitations to enter and to leave babies in charge of the attendants.

The nursery occupied a ground space 75 ft. by 50 ft., was of rustic construction and prettily decorated, and was located under a group of trees on the main street of exhibit buildings. Mothers with babes in arms or toddlers clinging to their skirts were invited to leave them at the booth, where a doctor, trained nurses, and professional kindergarten teachers were constantly on hand. This was expected to be of particular assistance to those mothers who were obliged to bring their children with them. It was recognized that a parent who was preoccupied with the care of children would not be able to devote the fullest attention to the exhibits and that thereby the maximum value of the fair might easily be lost.

At one end was partitioned off the real nursery, in connection with which was a mothers' rest room. Each mother registered her name and address and was given a numbered tag, the duplicate of which was pinned to the baby's dress. Around the nursery was arranged a row of cribs, for the little folks that wanted to sleep. Certified milk was kept in a Frigidaire electric refrigerator. Bottles and nipples were on hand, with electric bottle warmers and sterilizers. The room was kept warm with electric heaters. So popular did the nursery prove that three nurses were kept almost constantly busy, many mothers leaving their little ones here for hours at a time.

At the opposite end of the booth a play yard was installed, 25 by 25 ft. square, covered with a foot of clean beach sand. Here the toddlers up to five years old were cared for. Mothers were registered here, too, and the tots were tagged. See-saws, wheelbarrows, buckets, spades, and other toys were provided, while the kindergarten teachers devised games, told fairy stories, and supervised the play. Toy electric stoves were installed and every day the little mothers of tomorrow had lessons in biscuit making.

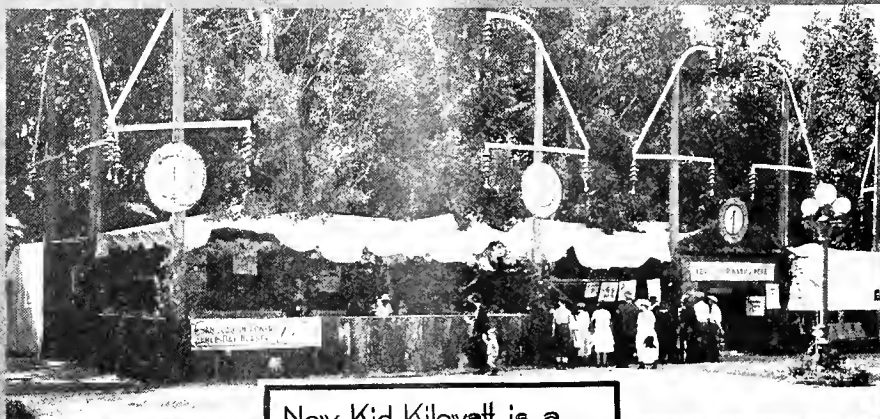
The San Joaquin Light & Power Corporation is featuring in its advertising a brownie-like elf which is called "Kid Kilowatt" and which is incorporated generally in the company publicity. Posted around the sides of the nursery were pictures of this little fellow combined with Mother Goose rhymes, written about Kid Kilowatt. These rhymes, in addition to interesting the children, carried a message of electrical utility and showed the company's name at the bottoms of the cards. Another feature of interest to the children was a large brown bear which had been captured by company employees in the mountains near one of the construction camps.

An emergency hospital was conducted, under the supervision of Dr. C. A. Mordoff, head of the company's medical department, and during the week of the fair 40 patients were treated at the hospital. The nursery took care of 150 babies, all of bottle age, while more than 400 toddlers were checked into the playground, 110 being checked in during a single afternoon.

Chairs in the main court were at all times occupied by weary mothers. Women crowded into the nursery in such numbers to catch a glimpse of the sleeping infants that the nurses could work only with difficulty, and it was finally necessary to curtain this department off from the public. The real attraction was the play yard, the little folks at play being a never-ending source of entertainment to the grown-ups. Of the 91,000 persons attending the fair, there were few who did not watch the kiddies at play.

This day nursery, in the opinion of Mr. Wishon and his organization, was a far greater success than had been anticipated. The novelty of it had news appeal and much publicity resulting. While there was no direct advertising, the use of the electrical appliances was splendid indirect advertising, and the Kid Kilowatt posters carried an advertising message that registered because it was uniquely handled. Above all else, there was organizational satisfaction in the rendering of a real service and beyond any question public good will was strengthened; as was manifested by the many expressions of appreciation. A letter of thanks from the fair management declares that the day nursery was one of the best of the fair's attractions.

The Kid Kilowatt Nursery is to be a permanent institution. Mr. Wishon plans to enlarge it next year and to introduce many new features.



Now Kid Kilowatt is a
queer little elf
Who makes the bright
lights burn all by himself;
He does washing and ironing,
and yet never tires
While he dances and prances
along on the wires.



SAN JOAQUIN
LIGHT and POWER
CORPORATION

Kid Kilowatt has come
into the house.
Kid Kilowatt is as still
as a mouse.
Do you suppose that
he means any harm?
No - he is here just to
keep baby warm!



SAN JOAQUIN
LIGHT and POWER
CORPORATION

Jack was nimble,
Jack was quick.
Jack jumped over
the candle-stick.
But Kid Kilowatt
is a faster sprite
Who jumps up to
the electric light.



SAN JOAQUIN
LIGHT and POWER
CORPORATION

WHEN the San Joaquin Light & Power Corporation decided to participate in the annual Fresno district fair, it sought a new field of service. The idea of a free day nursery for the use of mothers who brought their children to the fair was conceived. It met with immediate success and the good will which resulted has amply repaid the company for its efforts.





SAN JOAQUIN
LIGHT and POWER
CORPORATION

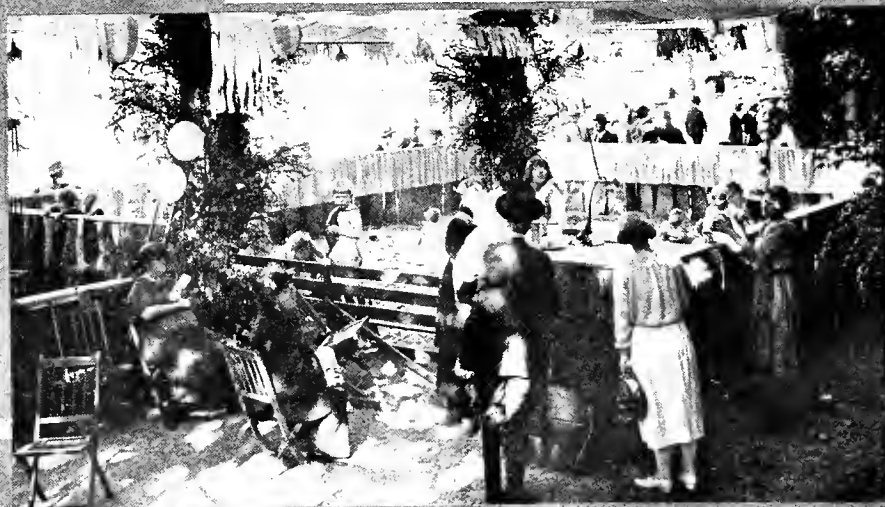


SAN JOAQUIN
LIGHT and POWER
CORPORATION



SAN JOAQUIN
LIGHT and POWER
CORPORATION

ONE of the features of the company's display was the novel posters depicting the antics of Kid Kilowatt. Samples of the posters are shown. Kid Kilowatt has now become an integral part of the company's advertising. Other views show King Kilowatt, a big bear caught in the High Sierra, and several views of the nursery and some of the inmates.



Can the Electrical Dealer Sell Radio?

By A. E. Schefframan

Radio Specialist,
Newbery Electric Corporation, Los Angeles, Calif.

IF the electrical dealer is to be successful in radio sales he has to readjust his selling methods. The man who sees the possibilities in radio, and has the vision to see into the future, can and will make the grade in radio, provided he is a business man instead of a scientist. While one should be technically familiar with his line, after all it is salesmanship that really counts; that and a knowledge of buying right.

One can always hire a technical man, but one cannot always get a real salesman. Radio has gotten to the point where long-winded technical "dope" on a set will not put that set into the home. The prospect must be worked on by a clever salesman who will paint a word picture of what that set will do in the prospect's home, who will tell him how much of a necessity it really is, and who will make the prospect want to buy his set.

The average electrical dealer is a technical man who has gone into business rather than a business man who has been trained technically. It is probably this fact that has cost the electrical dealer (as a whole) the appliance end of the electrical business. And just as easily will the radio business go to the music houses, department stores and specialty shops, if the electrical dealer doesn't buckle down to it and fight!

Radio Parts or Radio Sets?

This article does not aspire to dictate the class of goods that the dealer should handle. If the electrical dealer prefers to handle parts, let him do so. If he prefers sets, he can decide on what he will carry. If he wants to handle both classes of radio goods, he can hop to it.

Those who do a "cheap" class of business will have to handle radio parts on the same basis. One can buy cheap parts and do fair work with them, but handling cheap parts means that buying has to be carefully done. What a dealer is really after in parts is a quick turnover, and a dependable source of supply. Buy this character of merchandise from hand to mouth, until it is learned just exactly what the trade demands—even then it is necessary to go easy on buying, because parts have an annoying habit of becoming obsolete in a month. New hookups call for new parts, and one has to learn to be a good judge of what the trade will call for.

If a dealer is in a location where prices talk, he must be prepared to handle radio parts business on a cutthroat basis. This is a hazardous game, and one that only a good business man should try to play. Cut prices in parts may always be expected and

THIS article is of particular interest to electrical dealers because of the growing importance of radio sets and supplies as merchandising items and the tendency towards the invasion of the field by non-electrical firms.

unless a dealer's general business is conducted along the same lines, radio parts may be slow moving.

A dealer who handles radio parts must have a salesman behind the counter who knows radio material. Such a man will meet the customers with a pleasant smile and will know

how to raise a customer's purchase by showing him, in a tactful way, the new apparatus that has just come in. He will, too, be sure to ask his customers to come back and let him know how their purchase pleases. He will be first of all a salesman, and secondly, a man who enjoys radio—who reads all of the trade magazines, keeps posted on new developments, and gets a real enjoyment out of radio sales work. A salesman of that type will make friends for any store, will build up a good trade, and will be the least expensive in the long run.

Radio sets, properly chosen, are a splendid line for the big dealer to handle, for many reasons. For one thing, the worthwhile, stable manufacturers protect their markets; they give exclusive propositions to good merchandisers, and they see to it that cutthroat competition is either entirely eliminated or greatly minimized. An electrical dealer who is considering the handling of radio sets should make it his business to seek quality sets; investigate the various makes until he has found something suitable to his trade, and then should handle that line exclusively.

Stocking Radio Sets

The reason for suggesting one line of sets and sticking to them is that selling sets is not at all like selling parts. One must be able to deliver service with a set, whereas one assumes no responsibility for parts: if the latter do not work in the customer's circuit, a dealer is not to blame. A set must demonstrate to the customer that it will work, and work satisfactorily, and it takes a salesman familiar with his line to sell sets successfully. He must **know** radio.

Most of the modern makers of radio sets have a complete line—their sets range from low priced ones to the high priced, showy cabinet types. Consequently, if a dealer has made a wise choice in makes, he should be able to deliver a good set within each prospect's price limit. In addition, by specializing in one line, he is enabled to buy in better quantities, thereby putting himself in line for better discounts on purchases.

A dealer must by all means consider carefully whether he wants to buy direct from the manufacturer or from his local jobber. He must look for lines that have exclusive distribution, because thereby he

will be assured of protection from indiscriminate competition. He can afford to spend money to create a demand for a radio set that he knows he is protected on. He must get the right line, and then push it to the limit.

A dealer should not buy any line of merchandise too heavily. The set of today may be vastly improved tomorrow. Dealers must look for turnover rather than for anything else. They should be careful not to overstock. Above all, it must be borne in mind that the radio business is a seasonal one, and that it does not pay to carry a stock of goods over from one season to the next.

Selling Sets

A few pointers on what is necessary to successful radio sales will be of timely mention here. The ideal way to sell radio equipment is to be able to work on the prospect without interference. Owing to the nature of the business this applies with particular force to the sale of radio sets.

A good demonstrating room should be provided where radio sets may be displayed and demonstrated and where sales may be closed without interruption. A nicely furnished room, with an attractively grouped display of various sets, and a good glass-paneled door to close is a big asset in this sales work. If the room can be spared by all means prepare a radio studio or demonstrating room and use it in selling sets. An aerial wire and a ground wire should be run right in to the room and the job concealed so that these wires are not conspicuous.

The idea of the demonstrating room bears out the old-established custom among the music trades of using booths to help the sale of phonographs. Adequate ventilation must be provided so that prospects do not feel other than comfortable. A good plan is to have a noiseless exhaust fan in the ceiling.

The room should be made as attractive and as homelike as possible. It should be remembered that women buy things for the home, and the only reason they have not yet bought radio equipment is because sets heretofore sold have not been designed as attractive pieces of furniture, with a minimum of dials, switches, binding posts, and the like. Now that good and attractive cabinet sets are made women will become purchasers. The carefully planned and attractively executed demonstrating room will be of assistance in selling the female buyer.

If a dealer is near a good broadcasting station he should be sure to have a set operating in the doorway, with a loud speaker, whenever a program is being broadcast. A minimum of volume, with a maximum of clarity produces the best effect. Care should be used to avoid a blasting or distorted loud-speaker. Probably more harm has been done by the improper use of loudspeakers on sidewalks than by any other agency.

Windows must be dressed carefully and seasonal helps used. If the world's heavyweight championship is being fought an announcement that fight returns will be received by radio at your store will draw a crowd. If a big government official is to speak over the radio, it will interest many prospective buyers who may become steady customers.

The cost of advertising in relation to sales should be carefully governed. Good business demands a ratio of about one to 65. In other words, if monthly sales of radio are \$6,500, a dealer's radio advertising should approximate \$100 per month. If located in a big city and newspaper space is too high in price, some other method of publicity can be used.

The best business builders are the satisfied customers. Radio bugs will talk to their friends of the service a dealer gives and will boost for him if his merchandise and his service deserve boosting. It is well to promise less than a set will perform.

It is not well to sell prospects on long distance reception for many reasons: if effort is made to sell on long distance, a dealer must demonstrate long distance, and far-off stations never do sound like the good local ones. Prospects should be sold in the store, rather than in the home, so that the curse of night work may be taken out of the business. If prospects are sold on the idea of long distance, it means that a skilled salesman will have to work nights and, consequently, he will not be available during the day.

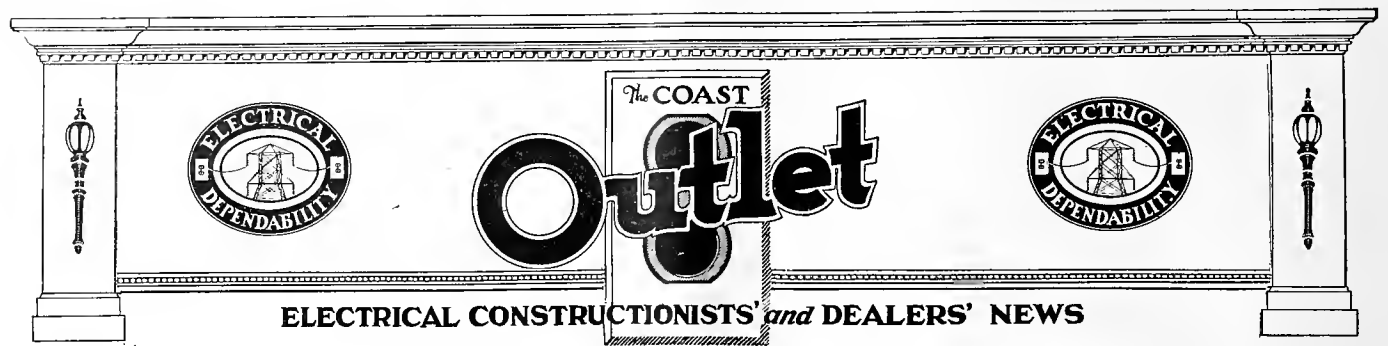
The dealer who gets the right line of sets to handle and who equips his store to sell the line; who knows how to pick a good salesman and who will train the salesman to sell along broad policies that favor the customer at every point except where it conflicts with good business principles; the dealer who can paint word pictures of the educational and entertainment values of his radio sets; who buys carefully and on a sound basis, can and will make a go of the radio business.

Electricity Replaces Man-Power in India

THE reluctance of the inhabitant of India to adopt anything new has long been the reason that the country has been classed as a backward nation. The change from the old method to the new has been extremely slow in India, due mostly to the natives' tendency to hold to the practices of their forefathers regardless of the merit of the old and the new methods of accomplishing the same result.

Because of the low cost of living and the low standard at which the natives live, labor has been obtainable for an extremely small cost. This fact, too, has mitigated against the adoption of labor-saving devices that are used in other parts of the world. For centuries the hand-pulled punkah has been the instrument that has been used as a fan in India. Illuminating has also been done with antiquated instruments. Cocoanut oil lamps have been the means of securing light at night for hundreds of years.

Despite this conservatism of the people of India, according to H. A. Doolittle, American consul at Madras, the electric fan and the electric light have shown a marked tendency to replace the punkah and the cocoanut oil lamp. The number of both private and municipal installations in the smaller towns is rapidly growing and a greater interest is being shown in electricity in all areas.



Electrical Construction

By E. Earl Browne

COMPETITIVE conditions and the resultant need for increased production and reduced manufacturing costs have occasioned closer attention to all factors bearing on production. Improved layout of buildings, progressive travel during manufacturing process, with consequent reduction of lost motion, placement of employees at their working stations and other factors have been seriously and thoroughly investigated. One of the most important items of consideration in recent years has been that of illumination as applied to factories and machine shops. Buildings have been constructed to better take advantage of the natural light and greater attention has been given to the matter of artificial illumination. The illumination engineer has been developed and has done notable work in solving many of the problems of restricted output.

Illumination engineers have made special studies of each individual problem, giving thought to the character of the work, speed of operation and nature of material handled, together with a consideration of the natural hazards of the particular process or business. The placement of lighting fixtures has been determined scientifically by use of measuring instruments which have indicated the proper degree of intensity necessary for the most efficient and safest performance of the employees' labor.

So satisfactorily has the illumination engineer's function been performed and so thoroughly has the general industrial world become convinced of the value of better illumination that correct illumination is now considered a vital necessity and a distinct asset to all manufacturing and machine shop con-

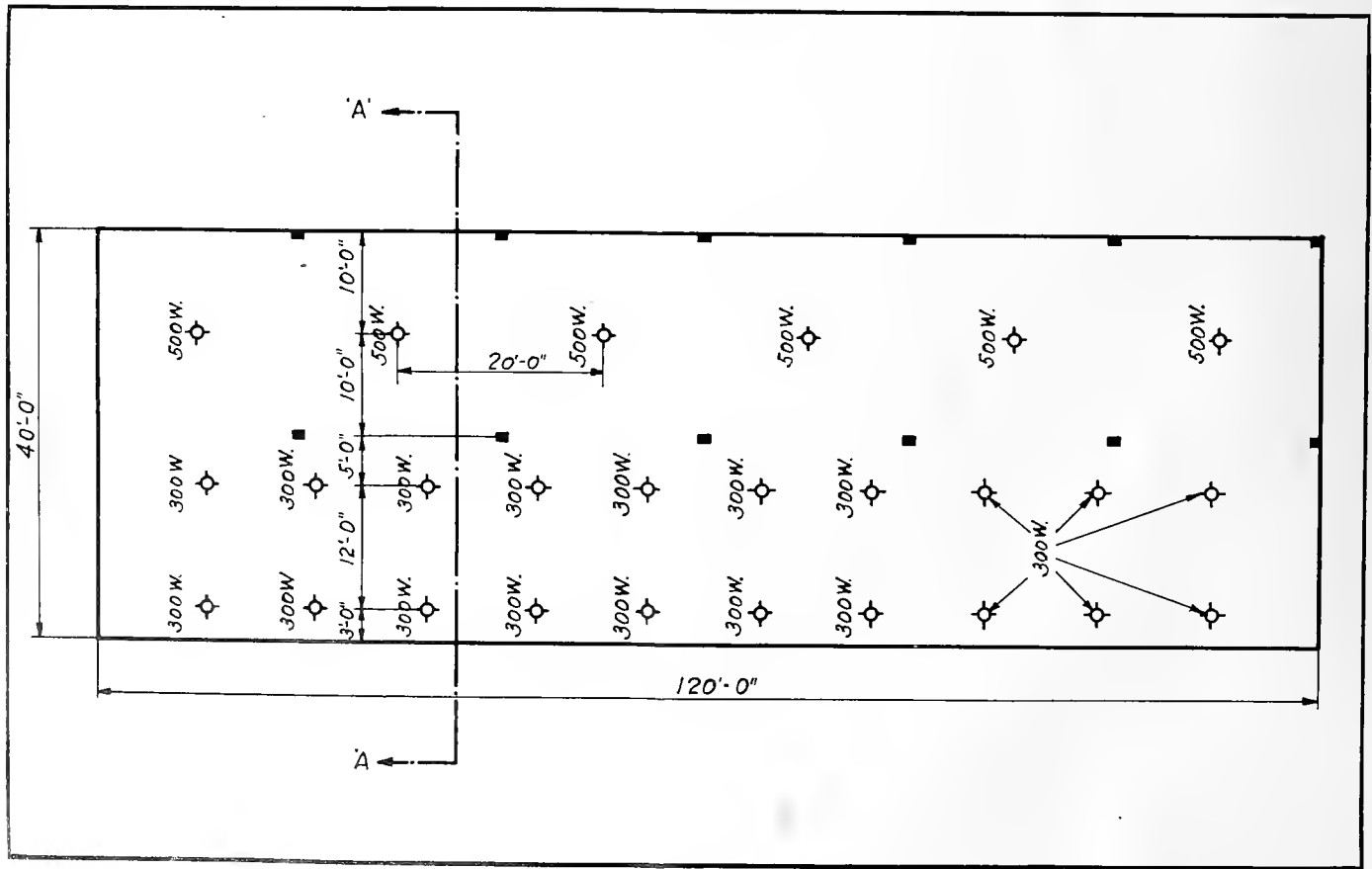


Fig. 1.

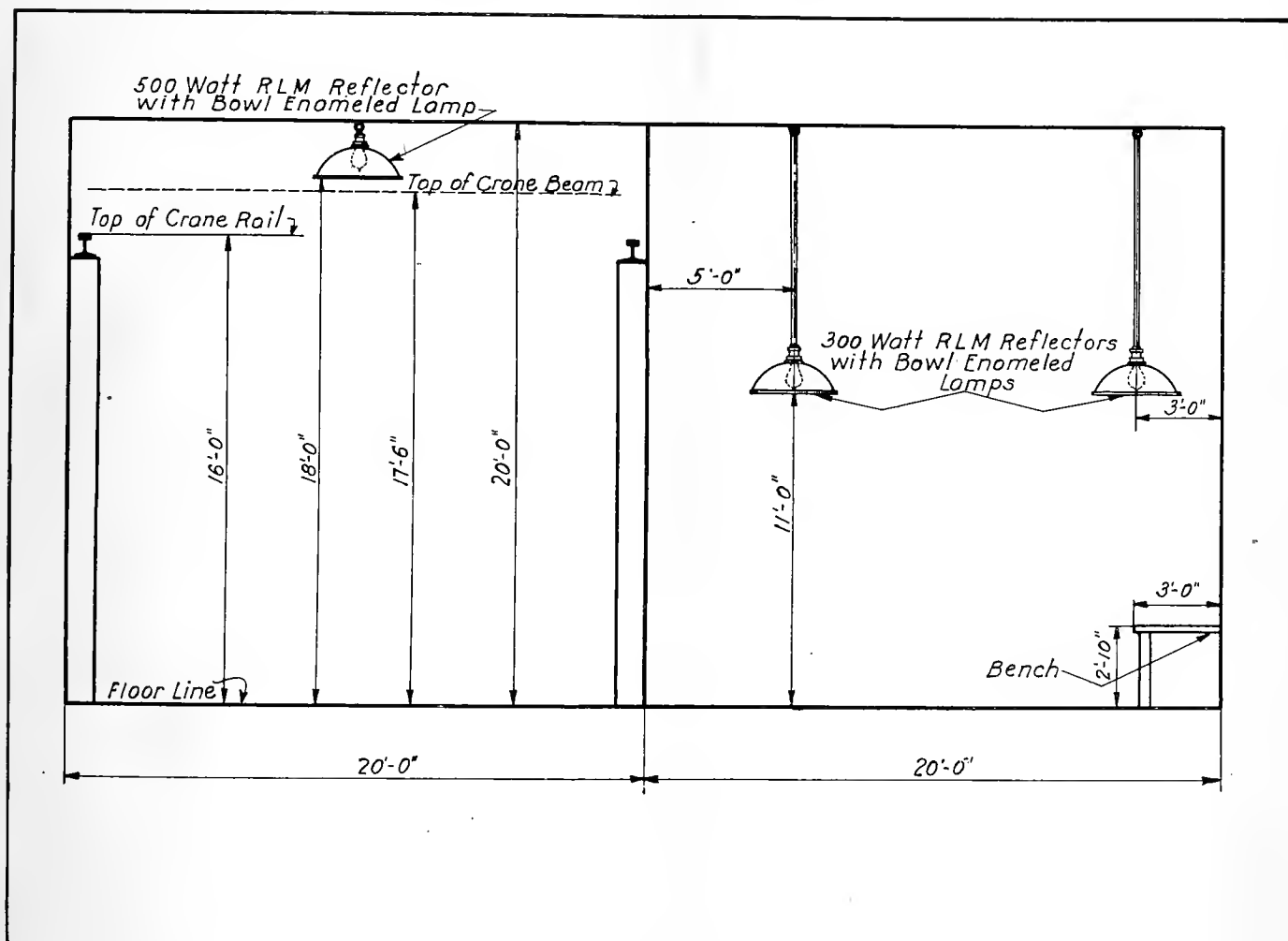


Fig. 2.

cerns. The increased safety factor, alone, has justified the additional investment in improved lighting and the increased production and decreased wastage, together with the possibility of efficient twenty-four hour operation, have paid big dividends.

The superintendent of the modern machine shop is usually cognizant of the effects of good natural and artificial illumination, but he has often been misinformed as to the proper artificial lighting system and as a consequence has not received the results desired. The installing of a local light unit over each machine and bench is far from desirable as the eyes of the workman looking up from his well illuminated work are not adapted for vision at low intensities; hence, if adjacent objects and aisles are only dimly lighted, he will be compelled either to grope about, losing time and risking accident, or to wait until his eyes have become adapted to the low intensity. Glancing back at his work again he loses time while the pupils of his eyes adjust themselves to the increased amount of light which reaches them. If long continued this condition leads to fatigue, as well as to interference with vision, and to accidents and decreased production.

The general illumination of all intermediate and surrounding areas should be sufficient to allow no marked contrast with the brightness of the working surfaces. It has therefore become universal to adopt the general or overhead system of lighting. This, however, means that consideration must be given to the interference of belts, pulleys and shafting, as well as traveling cranes.

In the case of a shop with group drive, the lights must be mounted below the drives so that no shadows are cast, and while this will sometimes mean the use of a number of smaller units spaced closer together, this is considered preferable practice by many engineers, even where there is no minimum limiting mounting height, in order to procure better distribution. This does not give quite as efficient a system from a dollars-and-cents cost per month viewpoint, as the lumens per watt vary from $11\frac{1}{2}$ in the case of a 75-watt Mazda "C" lamp, to $19\frac{3}{10}$ for a 1,000-watt lamp. Where traveling cranes are operated it requires the placing of all R.L.M. units above the high point of crane beam or by angle reflectors on columns below the crane rail. Figs. 1 and 2 show a plan and section of a machine shop 40 ft. x 120 ft. with a 20-ft. ceiling and with a crane operating the full length of one-half of the section of the building.

The foot-candle intensity of illumination for a machine shop should in general be about ten, although in some sections a higher value should be calculated in order to provide for extra fine work.

It will be noted that one row of outlets is placed so as to properly illuminate the benches, the center of the lamp being on the same line as the outside edge of the benches.

On some machines, such as punches and presses, it is necessary to provide local illumination so that the die setter can do his work faster and better.

Three rows of convenience outlets to provide for portables to examine the interior of cored castings, etc., should be installed in accessible locations.

Santa Clara League Conducts Successful Meeting

Newly Organized Association Is Progressing Rapidly in Plans for Better Merchandising and Relations

The recently organized Electrical Development League of Santa Clara County has started aggressively to improve general conditions for the members and associates. Numerous active committees have been appointed, each functioning on some one feature of the retail electrical business. The program committee has been especially active and has arranged extremely interesting meetings. The recent meeting on Dec. 6 was an especially notable one for one hundred and three members of the industry, including representatives of jobbers, manufacturers' agents and dealers were in attendance at the Hotel Vendome, San Jose, Calif. Dealers were present from South San Francisco, Watsonville and Santa Cruz and from all points between those cities. The peninsular cities were especially well represented.

The meeting opened with dinner at eight o'clock in the evening and was called to order by chairman Fred Doerr, of the Garden City Electric Company, San Jose. Preceding and during the dinner, music was furnished by "Shorty" Meade's orchestra. Additional entertainment was furnished by the Annabelle Revue which presented a dancing sketch. This team is composed of young lady members of the Pacific Gas and Electric Company's San Jose office staff.

Brief addresses were made by A. E. Rowe, of Garnett Young & Company, San Francisco; J. W. Redpath, secretary of the California State Association of Electrical Contractors and Dealers, San Francisco, and by others who spoke on the value and strength of cooperative association and action. Mr. Doerr also gave an opportunity to all jobbers' sales managers who were present to express their views and each address was greeted with hearty applause. A one-act playlet was staged by "Jack" Hayden, of the Pacific States Electric Company, San Francisco, and M. H. Anderson, of the Pacific Gas and Electric Company, San Jose. The scene was a modern retail electrical store and the sketch depicted the possibilities of developing a minor repair job into a sale totaling in excess of \$50.

Herbert A. Cram, representative in California, Utah and Nevada for the electrical department of Landers, Frary & Clark, New Britain, Conn., was the principal speaker of the evening and gave a very vivid picture of conditions confronting the electrical retailer. Mr. Cram pointed out the possibilities of developing retail sales and the danger of losing this potential business unless concerted action was taken to hold the trade to the electrical store. He also made many suggestions as to cooperative action by dealers and suggested that a public display of electrical merchandise be organized by the League in order to adequately present the desirability of appliances as Christmas gifts. This suggestion was enthusiastically received and a committee appointed to carry out the suggestion. This display will be held in one of the leading hotels and will be extensively advertised in the newspapers, all members of the League participating. The display will last only for three or five days and competent demonstration and

sales forces will be maintained in order to explain fully the operation and convenience of the various devices.

The next meeting of the League will be devoted to the matter of all-electric homes and is in charge of the electric home committee.

Sam L. Hall, of the Electric Supplies Distributing Company, San Diego, Calif., was a recent Los Angeles visitor.

The Janssen Electric Company, of Eureka, Calif., has just finished the installation in the first all-electric home in that section of the state.

The Globe Electric Supply Company, 1622 Wazee St., is the latest addition to the ranks of manufacturers' agents in Denver, Colo. The manager of the firm is Paul A. Douden, formerly a salesman in the Denver office of the Western Electric Company since 1919.

San Francisco Electrical Dealer Uses Novel Mail Advertising

There seems to be no limit to the number of worth while advertising plans available to dealers in electrical merchandise. Everything from store windows and counters to the newspapers and mail service offers the possibility of reaching the customer and stimulating his desire to buy electrical merchandise for his own use and for gifts.

The postal card reproduced herewith shows a novel plan which was used by the Levy Electric Company, San Francisco, Calif. Not only is this card cleverly thought out and written but it also makes use of the psychological fact that most people will read it carefully because it comes properly addressed even though it may be headed with the name of another. The card makes use of past business relations assumed to have been had with the person to whom it is addressed and contains an appeal for the serious consideration of electrical appliances as gifts. This form of advertising also has the advantage of being certain of delivery to the addressee and of attracting the attention of the recipient to the sender.

My Dear Tom:

I don't know whether it was you or Bill who asked me to find out where my wife purchased the Percolator Set, which she used at the party and which all the ladies admired

She tells me she got it at Levy's on Polk street near Butler, and tho she has had it over three years it is still as good as new. She also says that if you'll phone Mr. Levy, Prospect 230, that she is sure he will pick out just the 'Electrical Gift' that you may want. Hoping this is the information you want, I am "as ever"
George.

The postcard used by the Levy Electric Company.

Oakland Contractor Completely Electrifies Apartment

The complete electrification of a new apartment house is being made by P. H. Wetzel, an electrical contractor of Oakland, Calif. The new apartment is of an unpretentious nature, but the installation of complete electrical equipment was specified by the owner of the building. This progressive owner, in common with many other owners of apartments in the city, holds that an apartment supplied with the conveniences that electricity makes possible is much easier to rent than one not so equipped.

Mr. Wetzel did all of the wiring for the apartment and is responsible for the sale of the electrical equipment that has been installed. The installation when completed will be modern in every respect and should make the apartments exceedingly easy to take care of, because of the ease with which the electrical devices may be operated and also because of the absence of smoke and ashes that accompany the use of other fuels for heating and cooking.

The new apartment is located at Lakeshore Avenue and Hanover Street in Oakland and has eight apartments that will be rented. There are four four-room apartments and a like number of three-room apartments. Twenty-eight air heaters have been installed in the apartments, one being placed permanently in each of the main rooms of the suites. Provisions have been made for the use of portable air heaters in bathrooms and kitchens. Each apartment is equipped with its own electric range and hot water for all of the residents will be supplied from a central tank. This tank is of 300-gal. capacity and is equipped with a 5-kw. electric water heater.

Harvey Hubbell, Inc., Bridgeport, Conn., has brought out a new small composition attachment plug suitable for lamps, small portables and other similar devices. The plug has large binding screws and ample wiring space for lamp cord.

The John Hancock Electrical Company was awarded first prize for having the most artistic and attractive display window in the recent Edison Lamp Week contest held in Denver. This display was arranged by Mrs. H. A. Davis and Mrs. Clara Roles.

Telephone Directory Is Used by Licensed Electricians

Cooperative advertising in newspapers has been found to be an exceptionally effective means of presenting the message to the public at a proportionately low cost to individual advertisers. By grouping the advertisements of electrical contractors and dealers on one page, in many cases the electrical industry has been able to secure the entire space for the presenting of the electrical message, whereas if the individual contractors and dealers had inserted their advertising as separate pieces of copy, the results would not have attracted anything like the same amount of attention.

A new idea, though not entirely of a cooperative nature, has been tried out in Alameda County, California. Though the idea was not started as a cooperative venture, the results that have been attained are much the same.

In the classified directory of the telephone exchanges for Oakland, Berkeley and Alameda, in the section devoted to the electrical industry, there appears a page headed, "Licensed Electricians." On this page appear the names and addresses and in some cases short advertising phrases, of thirty electrical contractors operating in the three cities. Each space is $\frac{3}{4}$ in. deep and $2\frac{1}{4}$ in.

wide, and in this space appears the name of the concern and other information according to the preference of the advertiser. The telephone number appears in bold face type, making this more legible than the rest of the copy in the card.

This page, appearing as it does in the classified section of the telephone book, has been found to be quite an efficient means of advertising. The advertisers are grouped in alphabetical order and as a result no undue prominence is given to any concern.

The Rocky Mountain Electrical Co-operative League Electrical Home committee has recommended that the League put on an all-electric home in May, 1924. The committee is composed of E. H. Eardley, chairman; L. B. Johnson, E. A. Evans and G. R. Randall. This will be the third electric home under the auspices of the League.

The Western Insulux Company, Oakland, Calif., has moved to a new and much larger factory at 360 Adeline Street, Oakland. The need for larger production facilities resulted in the purchase of a lot and the construction of its own plant. The company makes the Insulux brand of insulating material.

New Officers Named by Alameda County Association

Officers for the coming year were elected at a meeting of the Electrical Contractors' and Dealers' Association of Alameda County, held in the Builders' Exchange Building in Oakland, Calif., on Dec. 4. T. L. Rosenberg, of the Quality Electric Motor Company, was re-elected president of the organization and C. D. Bronson, of the California Electrical Construction Company, was elected vice-president. F. A. Andrews, of the Andrews Electric Company, was named treasurer of the Association.

At the same meeting a new executive committee was also elected. The new members of the committee are: Walter Spencer, Spencer Electric Company; E. C. Heister, Advance Electric Company; and W. D. Vance, of the Pacific Electric Motor Company.

The association which was founded about June 1, 1923, has been steadily gaining in membership and importance in the East Bay region. At the present time there is a membership of about fifty-five. Attendance at the meetings has been exceedingly satisfactory and the results, according to members of the association, have exceeded the first expectations. A considerable amount of time has been spent in the fostering of satisfactory relations with the Department of Electricity in Oakland and as a result closer cooperation has resulted.

Meetings of the association are held each Tuesday evening at 8 o'clock in the Builders' Exchange Building. Informal procedure has been adopted in order that the members may become better acquainted with each other and also with the idea that the informal meeting is more adaptable to open discussion of mutual problems. Speakers from outside of the association have been present at several of the meetings to address the members.

Electrical Men of Oakland Hear Address of W. L. Goodwin

About twenty electrical contractor-dealers and thirty men representing other branches of the electrical industry in Oakland, Calif., were in attendance at the meeting of the Oakland Electric Club at which W. L. Goodwin, operating vice-president of the Society for Electrical Development, Inc., was the principal speaker. Mr. Goodwin discussed the relation of contractor-dealers of the West to those of other sections of the country and advocated that the men become more interested in national affairs of the industry.

The plans of the Society for Electrical Development, Inc., were explained to the members of the club and the service that the organization gave to the industry was also told. He recommended the use of electrical pages in local newspapers on a weekly basis and suggested that the editorial matter on these pages could be secured from the society's news bureau.

S. H. Taylor, secretary of the Pacific Coast Electrical Association and newly appointed Pacific Coast representative of the Society for Electrical Development, Inc., was also a speaker at the meeting. Walter Hayden, of the Fobes Supply Company, Oakland, introduced the speakers.

LICENSED ELECTRICIANS

ADVANCE ELECTRIC CO.
E. C. Heister
12th and Webster Sts.
Phone: Oakland 1954

BUSHMAN ELECTRIC CO.
Wiring, Fixtures, Appliances
Thoroughly Experienced and Reliable
Workmen. All Work Guaranteed
No Trouble to Give Estimates
See Estimates First. 2231 San Pablo Ave.
Phone: Lakeside 3610

CONRAD ELECTRIC CO.
R. H. Conrad, Motor Expert
Motors—We Buy, Sell, Rent, Repair,
Install and Exchange
2520 San Pablo Ave.
Day Call Phone Shop, Lakeside 155
Night Call Phone Oakland 4572

ELECTRIC MOTOR & MACHINE WORKS
Specialists in the Repairing and Re-
winding of Electric Motors, Gener-
ators and Control Apparatus
Motors Rented 217 Broadway
Office Phone: Oakland 2194
Night Call, Oakland 5250, Merritt 4522

HARTMAN ELECTRIC CO.
C. L. Hartman, Prop.
Wiring, Fixtures, Supplies
Old House Wiring a Specialty
433 East 14th St.
Phone: Fruitvale 3117

MILLER ELECTRIC CO.
C. W. Miller, Manager
Electrical Construction, Supplies,
Lighting Fixtures
353 13th St., Alameda, Calif.
Phone: Alameda 2541

G. E. ORTMAN ELECTRIC COMPANY
Motors Installed and Estimates
Furnished on House Wiring
973 18th St.
Phone: Lakeside 3945

QUALITY ELECTRIC MOTOR COMPANY
Motors Rented, Rewound, Sold and
Exchanged
Located at 227 12th St.
Phone: Oakland 1127
Night Phone: Lakeside 4946

H. STROLL
Electric Contracting of All Kinds
Old House Wiring a Specialty
Prompt Service Assured
If You Need Work in Our Line Get
Our Prices. All Work Guaranteed
672 Madison St. Phone: Lakeside 4252

P. H. WETZEL
Electrical Contractor
Electrical Fixtures, Estimates Given
4407 Hopkins St.
Phone: Fruitvale 4546 or 5014-W

JAMES ANDERSON
House Wiring, Fixtures and Repairing
2531 Wakefield Ave.
Phone: Fruitvale 455-W

CALIFORNIA ELECTRICAL CONSTRUCTION CO.
275 12th St.
Westinghouse Motors
Phone: Oakland 9417
San Francisco Oakland

CO-OPERATIVE ELECTRICAL CO.
L. M. Antley
High Grade Lighting Fixtures
Electrical Construction
Office and Showrooms, 640 12th St.
Phone: Oakland 437

FRUITVALE ELECTRIC CO.
Fixtures
Wiring, Old and New Houses
Appliances—Repairs
3271 East 14th St.
Phone: Fruitvale 28

N. C. HOPKINS
Wiring, Old and New Houses
Appliances—Repairs
1431 23rd Ave.
Phone: Fruitvale 543

MONARCH ELECTRIC MOTOR CO., Inc.
Motors and Transformers Installed,
Repairs and Rewound
2291 East 12th St.
Phone: Fruitvale 4433

PACIFIC ELECTRIC MOTOR CO.
Motors Bought and Sold
Motors Rented and Repaired
Motors Installed
Day Phone: Lakeside 1202
Night Phone: Piedmont 3533-W
12th Street at Alice

SCOTT-BUTTNER ELECTRIC CO.
Electrical Contractors and Dealers
Wiring, Fixtures, Repairs, Appliances,
Radio and Electric Supplies
15 Grand Ave. (2nd St. at Broadway)
Phone: Lakeside 93

STROM ELECTRICAL CO.
Appliances, Motors, Radio Supplies
Contracting and Materials
"Let's Try Alameda First"
1330 Park St., Alameda, Calif.
Phone: Store, Alameda 551
Personal Service Residence, Alameda 245

HOXIE & MEECH
Manufacturers of Distinctive
Lighting Fixtures
Sales Room, 4206 E. 14th
Fruitvale 4124
Night Phone: Fruitvale 5266
Factory: Fruitvale 5297

BLUNDON & WRIGHT
Electric Power Installation and Service
Agents for Fairbanks-Morse Motors
Lighting and Pumping Plants
Motors Rented, Repaired and Rewound
All Grades of Wiring
20th St. and Telegraph Ave. Oakland 4314

COMMERCIAL ELECTRIC COMPANY
Electric Work of All Kinds
E. Judd
428 31st St.
Phone: Oakland 2472
Residence, Alameda 2922-R

ELECTRICAL EQUIPMENT AND REPAIR CO.
Fred W. Fischer, Prop.
1239 1st Ave.
Wiring, Fixtures, Supplies and Repairs
Phone: Oakland 2331

R. H. GREEN
Electrical Contractor
Established 1921
412 Lincoln Ave., Alameda, Calif.
Phone: Alameda 2271

MELROSE ELECTRICAL SHOP
Electric Wiring, Supplies and Fixtures
532 East 14th St.
Phone: Fruitvale 3468

F. E. NEWBERY ELECTRIC CO.
Contracting Engineers
Motors Repaired, Rented and Rewound
1700 Webster St.
Wiring—Repairing
Phone: Oakland 2242

PARAMOUNT ELECTRIC COMPANY
At Connelly "Everything Electrical"
At Weber
Lighting Fixtures, Electrical Construction,
Repair Work
462 43rd St. Phone: Piedmont 258

SPENCER ELECTRIC CO.
When You Invest Employ the Best
Wiring, Fixtures, Repairs, Radio,
Appliances, Supplies
230 15th St.
Phone: Oakland 492

G. WEBBER
Wiring, Fixtures, Motors
1720 Schenck Ave.
Phone: Elmhurst 217

GOSS ELECTRIC Company
1228 23rd Ave.
Oakland, Calif.
Wiring and Fixtures
Westinghouse Lamps
Phone: Fruitvale 1952

JOBBER, DEALER AND SALES AGENT



“Better Lighting Week” Campaign Successful

Electrical Contractors and Dealers Association of Sacramento
Inaugurates Move for Improvement in Lighting

Realizing the importance to the community of better lighting and its effect on the general public health and welfare, the Electrical Contractors and Dealers' Association of Sacramento devoted the week of Nov. 5 to a campaign for improved illumination of homes, stores, offices and industrial plants. The committee in charge designated the movement as “Better Lighting Week” and all members of the association participated in cooperative effort.

Meetings were arranged at which special speakers, chosen for the occasion and trained in the subject of lighting, gave interesting talks on the various phases of illumination, each address being shaped to the particular audience before which it was presented. The Pacific Gas and Electric Company and the Great Western Power Company, both of which companies serve the city of Sacramento, cooperated in the campaign and assisted materially in its success.

The members of the association advertised cooperatively in the newspapers and all advertising carried the symbol of the association—“Electrical Dependability.” W. H. Rademacher, of the Harrison, N. J., factory of the Edison Lamp Works of the General Electric Company was the principal speaker during the campaign and made several addresses before various educational and civic bodies. Among others he addressed the Sacramento High School, Junior College, Sacramento Ad Club, Woodland Lions' Club, the Electrical Contractors and Dealers' Association of Sacramento and an open meeting held in the Chamber of Commerce auditorium. He also spoke before the Sacramento Valley Electrical Society at its meeting in the Hotel Land on Nov. 14 and the Sacramento Exchange Club on Nov. 16. At these meetings were present a great many representatives from all of the various branches of retail trade and manufacturing and the idea of better lighting was communicated to all.

Speaking before the Electrical Contractors and Dealers' Association of Sacramento Mr. Rademacher said, in part:

“The light manufacturers, the public utilities, the various associations, etc., have spent a great deal of money in national advertising, displays, and campaigns to sell the idea of good illumination and to create a ‘lighting consciousness.’

“Not nearly as much business has been secured as should have been; one

reason for this is the fact that the contractors and dealers have not been alert. Only about three out of every ten stores have good illumination, and only about ten out of every one hundred industrial plants.

“The difficulty with the contractors and dealers has been that they are skeptical of the possibilities of selling good lighting, and wait for the customer to come to them; they are not sold on the idea of the benefits to be derived from proper illumination and do not conscientiously sell it. Another reason for this is the fact that where one contractor has a distinct ‘lighting conscience’ and sells a good job, the owner goes to another contractor for another bid, and this man substitutes a cheaper job at a lower bid, and so on, until in the end the consumer is not satisfied and the contractor hasn't a job that can be used as an example of proper illumination.

“One good job sells another, and all of us should work together to build up a uniform standard installation. Good lighting does not cost much more than

poor lighting; and good lighting is not hard to sell. The contractors and dealers should let the public know they have good lighting to sell.”

By means of a chart, Mr. Rademacher showed the relative potential influence of electrical retail trade on the consumer due to the frequency of contact, ranging in order of importance from a minimum to a maximum as fixture dealer, contractor, dealer, and central station—all helping to create a “lighting consciousness.”

“The educational work being carried on by the manufacturers is not entirely selfish, for they are endeavoring to build up all the branches of the electrical industry. Poor dealer installations in their own windows are a drawback; they must sell themselves. Much good has been done by the promotion of the electric home idea and it should be fostered at all times, as it is a gain for everyone. Good-will is created by a good job. Seven ways to build up illumination business are: newspaper advertising, demonstration rooms, personal calls, your own lighting, special window displays, stuffers, and civic weeks.

“The old carbon lamp used four watts to produce one candlepower of light, while with the modern type B Mazda



The window of the J. C. Hobrecht Company, Sacramento, Calif., was loaned to merchants in other lines of business during the “Better Lighting Week” campaign of the Electrical Contractors and Dealers Association in order to demonstrate the value of adequate window lighting and the increased display possibilities obtained from the use of color screens in show window illumination.

only one watt is used and with the type C only one-half watt is required. Lighting costs have been decreasing until today they are only 5 per cent of what they were in 1890. This fact is due to a large extent to the improvement in the efficiency of the incandescent lamp.

"Artificial light is needed in order to display merchandise in the average interior; and good illumination allows a better display. Benefits to be derived from good illumination are: the amount of goods returned is greatly lessened; the clerical force is more enthusiastic and alert; the buyer is more receptive. The well lighted store draws people to it.

"Production tests have been conducted and the results have shown that proper illumination actually does speed up production and on specific tests this amounted to from six to thirty per cent increase in output with an increased cost of only one to one and one-half per cent of the cost of wages; with an average figure of ten per cent increase in production with an increased cost of only one per cent.

"Glare is the commonest evil met with in illumination problems. When glare exists there is not too much light, but it is mis-applied. What is needed is a comparatively uniform distribution of high intensity without glare. The purpose of a reflector or fixture is to control the light rays and to minimize

the effect of glare.

"Reflectors are divided into three general types: direct, semi-indirect, and totally indirect. Bowl enamel lamps should be used with open mouth reflectors when they are hung relatively high.

"Eighty per cent of the time the customer doesn't know just what he needs to satisfy the requirements and it is the dealer's business to show him what will be best. The two things to consider are quality and quantity of light desired; if this is not done, mediocre lighting will probably result instead of good lighting.

"Many improvements have been made in lighting equipment. The right reflectors should be used with the right lamp in order to secure the best results. Many mis-applications have been made by increasing wattage of the lamps without any change in reflectors, which can only produce poor results.

"The contractors and dealers should strive to sell satisfaction and service. It is necessary to use proper finishes in order to secure harmony. Tell people how to properly care for an installation, with particular stress on keeping lamps and reflectors clean.

"In show window lighting, something distinctive is necessary to attract attention. Show windows represent a large investment and therefore should be used as much of the time as possible. The advertising value is greatly en-

hanced by higher intensities; and also the drawing power is increased. By using angular reflectors, it is possible to control the light and keep it over the display area, producing a higher intensity on the goods; the use of daylight Mazda lamps also helps. Colored illumination presents a different appearance and has greater drawing power; on the average 40 per cent more people will be stopped. Colored illumination can now be easily obtained by the use of gelatin filters.

"Footlighting is another phase of show window lighting. It should usually be used in combination with the other forms. Show window lighting can be summed up by considering the show window as a miniature stage, where spotlights, foot lights, etc., can all be used to advantage. As to the proper light intensities, charts have been prepared by different manufacturers and organizations that give suggested intensities for different purposes; however, too much light cannot be obtained.

"There is a great deal of work yet to be done and just where the economic limit will be reached is very indefinite."

Merchants and manufacturers who were present at the various meetings showed great interest in the matter of better lighting and a considerable amount of business is expected to accrue as a result of the campaign.

ELECTRICAL INSTALLATION
GEO. C. FOSS
Electrical Contractor and Engineer
1210 J Street, Main 675
Phone 1114

Mr. Merchant!
get acquainted with the efficient salesman.
Better Lighting
He will help reduce your overhead expense and brighten up your store.
We are agents for the Standard Solar Day-Lite of cased crystal and translucent white glass with a high polished surface, thereby insuring a right light with practically no loss.

**BETTER LIGHTING
BETTER BUSINESS**
Dollars are worth a penny drawn in the well lighted store.
**WE ARE
Electrical Contractors**
WITH KNOWLEDGE AND EXPERIENCE.
For Home, Business or Public Buildings
Let Us Figure the Electrical Construction
Sterling Electric Company
907 8TH MAIN 708

**Information and
Estimates Cheerfully
Given**
Make your hours of rest hours of cheerfulness, by lighting up that dingy living room and dining room.
We stock fixtures, candlesticks and bracket lamps of special and unique designs.
Look for the Electrical Dependability logo and so all your electrical work will be assured of better work.

**ELECTRICAL
DEPENDABILITY**
"The Mark of a Service Electrically"
By having your work installed by a firm displaying the "Electrical Dependability" trademark, you can depend upon its giving you in the way of superior and performance service that which you have anticipated and hoped for.
Electrical goods bought from Electrical Stores are backed by expert Electrical Service.
**Electrical Contractors
—and—
Dealers Association
OF SACRAMENTO**
2 Ninth Street Phone Main 918
J. Meach & Elec. Eng. Co., 1110 J St., Main 575
The Service Co., 2941 32th St., Capital 41
The Supply Co., 514 J St., Main 427
C. Post, 521 Oakwood Bldg., Main 45087
Electric Works, 2214 10th St., Main 114
Hobrecht Co., R. at 11th St., Main 654
H. B. Meach & Co., 507 2nd St., Main 12

**Mr. Merchant
Listen!!**
**Do You Know What Your
SHOW WINDOWS ARE
WORTH?**
All of this week we have a most striking display in our windows. **WHAT CAN BE DONE TO IT** will amply repay every merchant in Sacramento to make a special trip some evening to look it over. Showing will remain in our windows until Nov. 11th.

THOMAS DAY COMPANY
LIGHTING FIXTURES
1210 J STREET
SACRAMENTO, CAL. MAIN 675
Phone 1114

**California Mechanical
and
Electrical Engineering Co.**
1110 J Street Main 675
We are a number of reliable electrical firms. We are willing to keep your work up to date and best to construction.
We are of that number. We are here to give the builder a square deal.
We buy good materials
We employ trained men
We ask reasonable prices.
We Give Free Consultation and Estimates
LET US FIGURE ON BETTER LIGHTING FOR YOUR HOME AND BUSINESS
**ELECTRICAL
DEPENDABILITY**

**DANCE UNDER
BRILLIANT LIGHT**
Illuminated by one of our electric fixtures. You will have more light and at the same time have a fixture that will blend harmoniously with the other fixtures of the room. You will find what a week around your dance.
When you have an new fixture, we will be glad to help you. We are good electrical construction engineers.
Electric Service Co.
2941 35th
Cap. 41

**Why are We
Selling So
Many Fixtures?**
Because
we have the latest designs and fixtures. Every selection sold is a salesman in itself in amount of our ability to tie up with the customer down through which is necessary to give complete satisfaction.
**You Are Invited To See
Our Show Rooms**
Clifford Prudhomme
Phone Cap 1177 2929 35th Ave. Clarks Oaks

FIXTURES
We Specialize in Better Lighting
We make and make Electrical Fixtures
If you have an business needs new quality, we will plan and install them.
Consult us about your electrical construction needs.
Waxon Bros.
1014 J Street Main 241

Samples of the cooperative advertising of the members of the Electrical Contractors and Dealers Association of Sacramento during their "Better Lighting Week" campaign. The entire week was devoted to the promotion of additional and better lighting of homes, stores, schools and factories and the symbol of "Electrical Dependability" was used as the keynote of the campaign.



Partial view of the interior of the Cole-Clark Electric Company on the day that the store was first opened for business.

“Mr. Customer, My New Store Is at Your Service”

Well Advertised Opening Aids in Introducing New Establishment to Firm's Prospective Customers in Vicinity

Probably the two most important days in the business career of the electrical contractor-dealer are the day that he decides to enter the industry and the day on which he opens his establishment for the first time. The disregarding of the importance of either one of these two days has spelled failure for many concerns and the granting of proper consideration to them has, on the other hand, started many contractors on the high road to success.

In making the decision to enter the electrical industry the man on the outside places himself ready, not only to compete with men already established in the electrical business, but also puts himself in a position where he must be prepared to serve his customers with the same diligence that his competitors do if he is to keep up the standards of the industry. The opportunities for personal gain are undoubtedly the factors that have influenced the individual to enter business for himself, but he has at the same time accepted certain responsibilities which will result in his doing business at a loss unless he can do a sufficient volume at a reasonable cost.

The plan of organization of his concern, the financing, the terms upon which he will do business, the lines that he will carry, the location in which he will do business and other similar problems must all be solved before an attempt is made to make any definite steps in starting business. Following the making of decisions as to the principles that will cover the method of doing business, the prospective contractor-dealer starts in on the actual work of putting these principles into service.

After deciding where his establishment is to be located, he has another problem of deciding when is the most

advantageous time to officially open the store for business. When this time has been decided upon, preparations must be made for introducing himself and his new concern to the public.

The opening day of any establishment is, according to many successful managers of merchandising concerns, the most important in its history. The reason for this is that on this day the new concern makes its presence known to the community that it is to serve and unless it is properly introduced a considerable amount of time will be spent in notifying the public of the existence of the new store that has been located in the vicinity.

To the public that attends the opening of the new concern, the celebration is put on in order to attract attention to the establishment and to introduce it to its new customers. The owner and manager of the new place of business know that there is a twofold purpose behind the opening ceremonies. The manager of the new store knows that in addition to introducing his establishment he is creating good-will for himself and his store and it is for this reason that such pains are usually taken with preparations for the opening day.

The merchandiser who has been established in a location for some time, of course has the advantage over the new entrant into the field. The former is known to his trade and unless relations between the store and the customers have been unsatisfactory it will be difficult for a new concern to take the business from the older one. This will be found to be true even if the new establishment is handier to the customer. Thus it will be seen that the initial impression that the electrical contractor-dealer makes upon his prospective customers is of utmost importance.

A well decorated store, in which a capable sales force is ready to show the visitors around and answer questions, will do much toward influencing prospects to visit the store when next in need of articles stocked by that firm. The manner in which the merchandise is displayed will have an important part to play in the opening day visiting period. The eye is impressed much more by the sight of the article than it is by written words that may be presented at a later date. It is distinctly to the advantage of the merchandiser to present all of his wares in the most appropriate settings during the opening day in order that visitors may see for themselves what line and character of stock is carried in the new store.

Though the opening of the new concern in the smaller community may be less pretentious than in the larger city, the need for some sort of special event is present. The same rules will govern in the two places for it is equally as important that the new concern become recognized and that a certain amount of good-will be formed in each location. Preparations for the opening should be made with just as much care by the owner of the small concern in the small city as by the manager of the larger establishment in the bigger field. The difficulties of entering the business, though not the same, will be of equal weight.

Some time ago a new electrical concern was established in Corvallis, Ore., by Frank Cole and G. A. Clark. These men made all preparations for the opening of the store and then proceeded to advertise the day of the opening. The newspaper advertising that was done in Corvallis attracted considerable attention to the store and a large crowd visited the establishment on the first day that it was open to the public. The two owners were on hand to greet the visitors and to show them around the store. All questions concerning the new industry that they had entered were answered freely but on the opening day no attempt was made to make sales to the visitors. The idea was rather to introduce the store to the visitors and to create as much good-will as was possible in the short time that the public of Corvallis spent in the store.

The interior of the store was attractively decorated with cut and potted flowers and electrical merchandise was presented in display cases and on the shelves that lined the walls. Devices on display were isolated and not bunched in order that visitors might gain an idea of the individual items that were carried by the Cole-Clark Electric Company. In a small room to the rear of the main sales room a display of fixtures was presented. Both ceiling and wall fixtures were presented there and guests were invited to view that display also.

The opening day held by the Cole-Clark Electric Company proved to be an excellent means of introducing the company to the citizens of Corvallis and of establishing the company's name in the minds of the public. The opening celebration, used by the Corvallis company, is suitable not only to firms that are starting in business for the first time but also for those that have moved to new buildings and desire to inform their customers of their present locations.



Booth of the Eureka Vacuum Cleaner Company at the Interstate Fair held in Spokane, Wash., this fall. Six thousand people entered the guessing contest which was held during the week.

Names of Five Thousand Prospects Secured at Fair

Eureka Vacuum Cleaner Company Uses Illustrated Placards and Guessing Contest to Arouse Interest in Display

The prize guessing contest has not been "worked to death" as a means of attracting attention, according to R. B. Carter, Northwest district manager for the Eureka Vacuum Cleaner Company. Neither has the display booth at the local fair, provided that the booth is attractively decorated for the occasion.

During the Interstate Fair held at Spokane, Wash., this fall, Mr. Carter had an occasion to make use of the guessing contest idea and at that time found it to be a most successful means of securing interest in the display that he had to present and also a means of securing names of prospects. Three Eureka vacuum cleaners were given away as prizes.

The guessing contest was centered around a 9 x 12-ft. rug that was placed in front of the booth used by the Eureka company. The crowds that attended the fair were permitted to walk over this rug and at the end of each day the rug was cleaned with an Eureka vacuum cleaner. The dirt was saved and the persons who entered the contest guessed the weight of dirt that would be collected during the week that the fair was open.

Six thousand persons were interested to such an extent that they signed guess cards and the guesses that were recorded varied from 2 oz. to 600,000 lb. At the end of the contest the dirt was weighed before witnesses and the accumulation that had been collected by the cleaner amounted to 36 lb. 14 oz. The three winning guessers were within 2 oz. of the correct figure and eight persons missed the total by only 4 oz.

After the contest was completed an analysis was made of the list that had been secured during the week. It was found that out of the 6,000 persons who

signed the cards, 1,102 already owned vacuum cleaners. The remaining 4,898 persons were judged to be good prospects for the company that retailed the vacuum cleaners.

During the time that the fair was open to the public, the booth of the Eureka Vacuum Cleaner Company was attractively decorated and an attendant was on hand to answer questions of visitors. A set of verses, appearing at the top of the booth, was no doubt responsible for much of the attention that was directed toward the display. This group of sayings, which was illustrated, was headed with the phrase, "The Eureka Speaks for Itself."

SANTA CLAUS BROADCASTS A MERRY XMAS MESSAGE

By JOE OSIER

—"And peace on earth to gentle men. * * *"

Station I.O.U.—S. Claus broadcasting to men of the electrical industry:

"Men of the electrical fraternity:—The happy yuletide is at hand and soon I shall pack my storage battery truck with suitable gifts for the high and low bidders, leaving my Northland home on my annual tour. But, before I make my departure—before the Christmas bells begin to chime, I wish to give every Man of the Trade due warning regarding what he may expect in his seamless sock on the season's brightest day.

"My generosity, my friends, will depend upon how you have conducted your affairs—business and personal—during the past twelve months.

"You who have been fathers to your families, the Good Chief to your em-

ployees, a Good Fellow to your associates and a friend to all men, will be showered with gifts as never before.

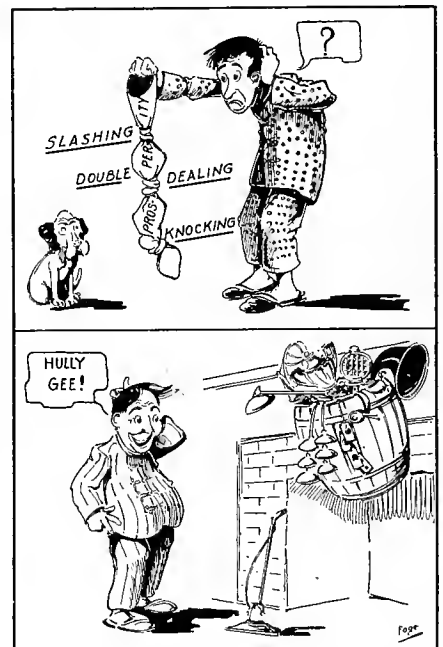
"But, by the same token, you who have been classed as crabs—both at home and abroad; you who have double-dealt and connived and contrived to grease the skids for a competitor,—your presents shall include checks marked N. S. F., notes overdue, foreclosures, liens and bills without end.

"On this Christmas day, I shall exchange good for good and evil for evil—I shall reward the square-shooter and the slippery slasher. To one, I shall give all that is good; to the other, I shall dedicate a roundelay of razz-berries.

"I shall look with compassion on 'the other bidders were' but shall turn my paunch in disdain from the witless ones who whittled, slashed, cut and crawled under legitimate bidders. My thumbs shall be down on all these.

"I shall bear gifts bespeaking my good will to men who are cheery, obliging and gracious; I shall extend my hand in fellowship to those who played square and stood square.

"But for those of corkscrew attributes, who skulked and slept in round-



As youse sew—so sets your sock!

houses, I shall say them 'nay' and 'nix' and 'nothin' doin'.

"Gentlemen, this is Santa Claus speaking—K. Kringle with the red 'unie' and the button nose.

"I am justice personified; I am fairness, unequaled, but I am gifted with a marvelous memory. I have kept tab during the year and I have the goods on every man, woman and child in the world.

"And on Christmas Eve, I shall honk thence and thither and yon and satisfy the yen and the yearnings of those who have believed in me; believed in their fellow men and played the game of Life and won fairly.

"I now turn to the task of manufacturing a million asbestos mitts for men of the industry who have burned their fingers during the year, on contracts they should not have wanted.

"A Merry Christmas. I thank you."

INDUSTRIAL NEWS



New Interconnection to Be Made in Southern California

The last link in the interconnecting power line chain, extending between Oregon and the Mexican border and covering the entire state of California in an unadvertised "superpower" system, was forged when arrangements between the San Diego Consolidated Gas & Electric Company and the Southern Sierras Power Company were completed for a line connecting those two systems over the Coast range and through the desert between San Diego and Imperial Counties.

An expenditure of \$500,000, of which the San Diego company will spend \$200,000, is to be made for a connecting power line which will make it possible for power to be purchased from the San Diego company for use in Imperial Valley in case of emergency.

The extension improvement follows the purchase of the Holton Power system by the Southern Sierras Power Company. The new line will connect the former Holton Power Company lines with the San Diego Consolidated Gas & Electric Company for emergency service. In the past, with power sources in the north, storms in the San Bernardino mountains have sometimes broken down lines feeding Imperial Valley, leaving it dark until repairs could be made. The new line to San Diego will make power available from this source in case of such emergency.

According to the agreement between the two companies the San Diego Consolidated Gas & Electric Company will extend its lines from its new substation at Escondido to Rincon, where it will connect with the line built by it to supply power to the Henshaw dam operations. The line from Rincon to the Henshaw dam will be purchased by the Southern Sierras Power Company, it is understood, and will be extended by that company through one of the passes in the Coast range to and across the Imperial Valley desert to connect with the former Holton Power Company lines at El Centro.

Survey parties from both companies have been plotting out the routes to be taken for some months and work on the construction of the line is expected to start with the California State Railroad Commission's approval of the transaction. Announcement of the transaction first came from A. B. West, president of the Southern Sierras Power Company, on Thanksgiving day, although negotiations for the connecting line have been under way for several years.

The Holton Power Company was originally organized to provide light and power to Imperial Valley by the use of steam generating plants. The steam

plants becoming antiquated, power has been purchased for some years from the Southern Sierras Power Company over a transmission line 500 miles in length. The new line to San Diego will be 100 miles in length and bring much closer connection to power sources. The industrial welfare relations of San Diego and Imperial Valley are also expected to become closer welded by this new power connection.

As the first step in this project, the power line built by the San Diego company to supply energy to Henshaw dam was made of permanent type construction and for later conversion from an 11-kv. to an 88-kv. line. The new power line being built by the San Diego Consolidated Gas & Electric Company between Del Mar and Escondido, and the new substation erected at Escondido were also built with provision for sufficient capacity to take care of the Imperial Valley tie-line in the event of its final undertaking by both companies.

Bellingham Refuses Sanction of Municipal Plant Bonds

At the Bellingham, Wash., city election, Dec. 1, the proposed \$500,000 bond issue to provide a municipal light and power plant, was defeated by the voters. Prior to the election, strenuous objection to the measure was voiced by various public bodies, including the American Association of Engineers, who held that no proper and complete estimate of the cost of the project had been obtained, and that information available was inadequate to justify action.

The Bellingham Central Labor Council also passed a resolution opposing the proposed ordinance, on the ground that details of the project were incomplete. This body, however, urged a readjustment of the rates for electric power and lights now being charged by the Puget Sound Power & Light Company, which serves the city.

To supplement two previous applications for power sites in Tulare County, California, Loren B. Curtis, of Los Angeles, has made an application to the Department of Public Works of the State of California for permission to appropriate 150 sec.-ft. of water from the Kern River. The plan is to erect a power house in Tulare County. The theoretical horsepower that can be developed is 27,270.

Specifications and conditions of contract covering the power house and plant equipment for the Arapuni Electric-Power Supply of the Public Works Department of New Zealand have been printed. A copy of the book is on file in the office of the Journal of Electricity.

Arizona to Refuse Extension of Diamond Creek Permit

That the Girand permit from the State of Arizona, for the erection of an hydroelectric project at the mouth of Diamond Creek on the Colorado River, will not be renewed when it expires Dec. 23, is the announced decision of Governor Hunt of Arizona. The governor's decision came after the matter was referred to him by Vernon Vaughn, water commissioner of Arizona.

Governor Hunt wrote the water commission requesting the denial of an application for a renewal of the permit, which has been filed by J. B. Girand, the original holder of the Diamond Creek permit. The letter sent by the governor reads as follows:

"As the question of the development of the Colorado River is one which is now receiving consideration both by the states in the basin and by the Federal government and the desire seems to be to treat the proposition for development as a unit, I believe it advisable that the negotiations be not affected in any way by the interests of any one project. The Federal Power Commission has indicated that it will not grant any permit to Mr. Girand until such time as the seven states of the basin arrive at an understanding."

The Federal Power Commission recently refused to grant a license to Mr. Girand for the project, stating that the settlement of the Colorado River controversy would have to be made before any license for projects on the river could be made. The Girand permit was issued on Dec. 26, 1922, and was one of the last acts of the former Arizona state power commission.

The permit stated that the applicant was to build a dam at the mouth of Diamond Creek, 300 ft. in height and 1,200 ft. long. The permit allowed the appropriation of 10,000 sec.-ft. of water for use in the generating of power. This permit was assigned to the Colorado River Engineering & Development Company on Dec. 27, 1922. About \$150,000 is understood to have been spent in preliminary surveys and soundings.

R. E. Cunningham, superintendent of distribution, Southern California Edison Company, was the main speaker at the Dec. 11 meeting of the Synchronous Club, held in the banquet room of the Independent Foresters' Building in Los Angeles, Calif. Mr. Cunningham's topic was "Recent Observations of Engineering Practice Throughout the Eastern States."

The Pacific Gas and Electric Company has recently requested the approval of the California State Railroad Commission in connection with the company's proposal to operate the plants and properties of the Amador Electric Light & Power Company of Sutter Creek, Calif.

Advocates of Public Ownership in Washington Active

At a meeting of public ownership advocates in Tacoma, Wash., recently, an organization was effected under the name of the Washington Superpower League. At the meeting plans were adopted for a state-wide campaign to pass at the November, 1924 election, a state initiative bill giving municipalities and larger districts authority to operate public power plants.

The meeting approved the general principles of the power bill drafted by Oliver T. Erickson, councilman of Seattle, designed to control the water power of the state, while promoting public development of hydroelectric plants. It was agreed, however, to omit from the bill the provisions authorizing public operation of telephone systems by municipalities or larger public units. Legislation for public ownership of telephone systems will be left for a separate initiative measure, which is already under way in Seattle. T. J. L. Kennedy, corporation counsel, is drafting an initiative bill permitting cities to acquire, by condemnation purchase or construction, telephone systems to be city-operated, and the measure is to be backed by the cities of Spokane and Tacoma as well as by Seattle.

The league authorized Fred Chamberlain, the president, to appoint an advisory committee of fifteen or more members representing various parts of the state.

With only a few dissenting votes, the report of the light and power committee of the Municipal League, of Seattle, Wash., relating to the development of the power resources of the state, was recently adopted by the league. The report discussed the power possibilities of the state and recommended a state-wide organization to promote legislation to enable districts in any part of the state to develop water power sites within their borders. A tie-up system between the new plants and those now owned by the cities is recommended, with the right of the different districts and municipalities to sell power to each other. The report recommended that the Municipal League appoint a committee to assist in the formation of an organization to foster the proposed development plan.

Voltage on Pit River Power Line Is Raised to 220,000

Actual operation of one of the Pit River circuits of the Pacific Gas and Electric Company at 220,000 volts was started on Nov. 16. The twin circuit line from Pit River to Vaca Substation was constructed for 220,000-volt operation, but the line has not been operated at this voltage until this time, owing to the fact that the line capacity was not needed and because all portions of the second circuit were not complete.

The Pit River development with its 202-mile, 220,000-volt transmission line has attracted considerable attention in engineering circles because this was the first transmission line in the world to be originally constructed for 220,000-volt operation. Up to Nov. 16 the line was operated at 110,000 volts and at the present time the second circuit is being operated at 110,000 volts in parallel with the 220,000-volt line. This method will continue until such time as the additional capacity of the second circuit

at 220 kv. is needed. This change will be made when Pit River No. 3 Power House is put in operation.

Before placing the line in regular service, engineers of the Pacific Gas and Electric Company conducted complete tests of the performance and characteristics of the 220-kv. line. The results of these tests will add considerably to the data available on the performance of very high voltage transmission lines.

Federal Licenses Subjects of Three Applications

Three applications for licenses under the Federal water power act were filed with the Federal Power Commission during the period Oct. 29-Nov. 20. Two of the applications are made in connection with mining operations.

The third application is that of the Excelsior Water & Power Company, which has applied for a license for a 4,000-kva. project to be developed by slightly enlarging the capacity of the old Excelsior mining ditch, which was constructed in 1854, and by dropping the water from the ditch through penstocks about 750 ft. to a power house on the South Fork of the Yuba River. The site of the proposed power house is about one mile above Bridgeport, in Nevada County, California. The power will be delivered to the Pacific Gas and Electric Company by a transmission line two miles long connecting with the Colgate plant on the main stream of the Yuba River.

Land at Site for Priest Rapids Project Is Purchased

Seventeen thousand acres of land at the proposed site of the Priest Rapids hydroelectric plant of the Washington Irrigation & Development Company have been purchased by that company, according to Henry J. Pierce, president of the company. The site of the power project is on the Columbia River in Yakima County, Washington.

The land includes 7,000 acres which will be overflowed by the projected installation of the company's two-mile dam. Acreage on both sides of the lake is also included in the plot of ground as is frontage on three miles of the Columbia River. Mr. Pierce has stated that more than a million dollars has been spent in the purchase of land and for preliminary surveys and exploration work on the bed of the river under the dam site.

The Washington Irrigation & Development Company, a subsidiary of the General Electric Company, has been awarded a preliminary permit for the site by the Federal Power Commission and is now awaiting the granting of a license by that body. Col. W. J. Borden, of Seattle, is investigating the site for the Federal Power Commission. The initial outlay at Priest Rapids is estimated at \$28,000,000, while the total construction cost is expected to run as high as \$90,000,000.

Heads of the radio departments of Sacramento, Calif., electrical stores and other establishments handling radio equipment, have recently organized a new radio club in that city. The new organization has been named the Sacramento Retail Radio Dealers' Association. Meetings are held at Clobin's Grill on Tuesday noons.

Engineers State San Francisco's Water Rights in Danger

That the Hetch Hetchy water project of the City of San Francisco would be crippled financially and that the city's titles to water rights would be endangered by the acquisition of a municipal electrical distribution system in San Francisco, is the opinion expressed in a report adopted by the San Francisco chapter of the American Association of Engineers, on Dec. 11. The report recommended that a temporary disposition of power through existing agencies be made.

The report states that to finance a distribution system in San Francisco and the additional generating equipment that would be necessary, the city would have to sell bonds to the extent of \$63,000,000, and if this is legally possible would seriously prejudice the issuance of \$70,000,000 in bonds which are necessary for the completion of the aqueduct and the acquisition of the Spring Valley water system.

The work on the construction of the Hetch Hetchy water system must be prosecuted with diligence, according to both of the court decisions and the Raker Act which cover the city's title to the site. The engineers' report declares that if bond issues beyond the legal limit allowed the city are needed to secure funds, the work on the project may be seriously delayed or even stopped entirely. In that case other users of water may come in and, according to the report, it might be extremely difficult to force them to vacate the sites at a later date.

Speed of 105 M.P.H. Attained by Electric Locomotive

On Dec. 4 and 5, at the Erie Works of the General Electric Company at Erie, Pa., a test of a new 1,500-volt high speed gearless passenger locomotive was conducted and at the time a speed of 105 m.p.h. was attained. The new locomotive, which was designed to operate at a required speed of 81 m.p.h., was built for the Paris-Orleans Railway.

The tests were conducted in order that railway men of the United States might see the new locomotive in operation before it was shipped to France. At the same time the visitors were given an opportunity to view the operation of the 150-ton, 3,000-volt freight locomotives that have been built for the Mexican Railway Company, Ltd.

Permits for hydroelectric power projects in the Kings River Valley, requested by the Bureau of Power and Light of the City of Los Angeles, Calif., have been denied by the Federal Power Commission. The Commission has ruled that no permits shall be issued for projects in the Kings River Valley or in other portions of the proposed Roosevelt Park until after the park legislation is disposed of and the boundaries settled.

Equipment for the new General Electric radio broadcasting station in Denver, Colo., is now on the way to that city. The decision has been made to locate the station in the suburbs of the city on East Colfax Avenue, according to Harry Randall, district manager in Denver.



Sixty-eight billboards similar to this one have been used by the electrical industry in Los Angeles to increase Christmas sales.

Los Angeles Electrical Men Use 68 Christmas Billboards

Sponsored by the Electric Club of Los Angeles, Calif., the electrical industry of that city has provided an outdoor advertising campaign during the month Nov. 25 to Dec. 25, which is for the benefit of the entire industry.

The bill posters which were proposed under the supervision of the Society for Electrical Development, Inc., for use by the various electric clubs and leagues throughout the country, were furnished at a very nominal cost and are on display on the boards of Foster & Kleiser in the city proper of Los Angeles only.

There are 68 of these bill posters shown in the various sections of the city, 34 of which are illuminated and which portray the typical Christmas spirit. The poster is a highly colored one and consists of a large picture of Santa Claus with the slogans "Give Something Electrical" and "Practical Gifts that Please." There are no names whatever on the boards nor any reference to any particular electrical appliance, manufacturer, jobber or dealer.

The entire cost of the campaign amounts to slightly less than \$1,700 and will be borne by the various branches of the industry in Los Angeles. The display was arranged by R. E. Smith, president of the Electric Club, who proposed the idea.

Water From Jordan River Filed on by Utah Company

The Jordan River in Utah has been restored to entry by applicants for use of water, by proclamation of the Utah state engineer, with the approval of Governor Mabey. The river was withdrawn from entry, with other main tributaries of the Great Salt Lake, in connection with the investigations of the Great Salt Lake basin reclamation project during the last few years.

Reopening of the Jordan River waters to entry has been followed with the acceptance by the state engineer of a filing made by the Utah Power & Light Company for the use of 75 sec.-ft. of water in the company's proposed Jordan steam plant extensions. With the acceptance of this filing the Utah Power

& Light Company is now prepared to proceed immediately with the enlargement of the steam plant for generating electricity. The power company is proposing the enlargement of the Jordan steam plant to supplement its hydro-electric system, making Salt Lake City and tributary territory assured of a continuous power supply in event of damage to transmission lines from the north.

As stated in the application, "The water is to be used for condensing apparatus for a turbine generator in a new and additional power house to be built to the west of and adjoining the present power house situated on the company's property between South Temple and First South Streets and between Tenth West Street and the Jordan River. The water will be taken into the power house in an open flume and pumped through condensers and discharge piping into an open flume thence back to the river."

An order has been placed for a 20,000-kw. steam turbine. The plant now has two 8,000-kw. steam turbines, and with the installation of the new one its installed capacity will be about 45,000 hp. Work has been under way for some time on the enlargement of the plant, and it is expected that the total expenditure will be about \$1,500,000.

During the past year and a half the power demand has increased to such an extent that the management of the Utah Power & Light Company believes that an increased capacity of this emergency plant is essential to proper protection of its patrons. It is expected that this increased capacity will afford ample protection to patrons in the Salt Lake Valley for many years to come.

The 1922 Commerce Year Book of the Bureau of Foreign and Domestic Commerce, Department of Commerce, has just been issued under the direction of Julius Klein, director of the bureau. The book contains a comprehensive review of the import and export situation and statements and tables showing the segregation of values. The book may be obtained at a price of sixty cents from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Electric Shovels Being Tested in Utah Copper Mine

The first of two electrical shovels to be installed by the Utah Copper Company, for test purposes in its open pit mine, is now operating, marking an important departure in operations at the company's Bingham, Utah, property. The one now operating is a direct current type, made by the General Electric Company. The other one to be installed in a short time will be the alternating current type made by the Westinghouse Electric & Manufacturing Company. These shovels will be pitted against one another to determine which type is best adapted to the company's needs.

Plans of the company are to gradually substitute electrical shovels for those propelled by steam. This will be done after a thorough test of the electrically operated shovels has been made. The one now operating at Bingham is the first to be installed in a mine west of the Mississippi River. Although there are electrical shovels operating in the West, none of them are being used in mining.

For over nine years the Chile Copper Company has been using electrical shovels in its open pit with marked success. By using electrical shovels the Utah Copper Company hopes to effect a saving of 10 cents a ton in the mining of its ore. No coal, no water, no firing, no watching of shovels during idle shifts will be necessary. Other economic features will be fewer repairs, no loss of energy as there is in steam shovel operation during periods of temporary shutdown. No time will be lost in the repairing and washing of boilers.

Lines will be laid for the bringing of current to the shovels, along the edge of the banks on the various levels on which they operate. At present power is being conducted to the shovel now in operation by means of 5,000-volt flexible armored cables.

The new shovel is equipped with four and a half ton all-manganese steel dippers. Dippers on the steam shovels have a capacity of but three tons. The 24-ft. boom is capable of making three cycles a minute. A carload of ore carrying 35 cu. ft., or approximately 48 tons, can be loaded in four and a half minutes. Material can be disposed with as much precision with regard to making a well distributed load as if done by hand.

Another innovation begun this spring by the company—the conversion of its shovels to the caterpillar type—is proving its efficiency. Formerly a railroad track had to be laid ahead of the shovels.

Danger of operation is considerably reduced, in that there is no need of keeping four men in the pit ahead of the shovels laying rails. But three men will make up a crew of the electric shovel of the caterpillar type as compared with a crew of ten necessary to man one of the old style steam shovels.

The Utah Power & Light Company has recently completed its 44,000-volt line from the Silver King Coalition mine to the Keystone mine near Park City, Utah. The line from the Park-Utah mine to the Hawkeye mine will be two miles in length, will be operated at 11,000 volts and is now under construction.

Electrical Equipment for Japan Burned Area Ordered

Orders for a considerable amount of electrical equipment to be used in the devastated region of Japan have been received by the Westinghouse Electric International Company. According to I. F. Baker, manager for Japan for the company, many of these orders are for quick shipment and work is being rushed on the manufacturing of the equipment.

The orders include 7,000-kva., single phase, 50-cycle, 3,300-volt distributing transformers to be used in the burned district of Tokyo, to step down the voltage for the 210-volt and 105-volt supply lines. These will enable small business houses and domestic consumers to secure electric service again. These transformers are of a new design, the cases and covers being of pressed steel. Two hundred and twenty-four automatic single phase, feeder induction regulators, rated at 60 kva. with 3,450-volt primary have also been ordered from the Westinghouse company. These regulators will be used in keeping the voltage constant where light and power are both drawn from the same distributing system. This is claimed to be the largest order for regulators ever placed for export.

The Westinghouse International Company is also to supply 215 large heavy duty oil circuit breakers for controlling the power circuits in various substations throughout Japan. These circuit breakers will be of the same design as those used by the largest power companies in the empire. Provisions have been made for a speedy installation of the breakers in order that they may be placed in service immediately upon their arrival in Japan. One hundred of them are equipped with the necessary supporting framework so that with the connection of cables to their terminals they will be ready for service.

A 6,000-kw. Westinghouse Parsons reaction type turbine generator has been ordered by the municipality of Kobe. The new unit will operate in parallel with the 12,500-kw. generator which is now supplying Kobe with light and power.

Bids for Lake Cushman Project to Be Called for Jan. 1

Bids for the construction of the first unit of the proposed Lake Cushman power project, under development by the City of Tacoma, Wash., are to be issued early in December, and will be returnable about Jan. 1, 1924, according to statement of Ira L. Davisson, commissioner of the city light and water department. Ordinances providing for the issuance of bonds and letting of contracts have been presented to the city council and J. L. Stannard, chief engineer of the project, has given his final and definite estimate of the cost of constructing the first, second and third units. Mr. Stannard estimates that the city will ultimately expend \$10,000,000 on the Lake Cushman project, with the total development of 140,000 hp. The exact total cost figure is \$9,905,000, which will make the development cost a little less than \$71 per horsepower. Estimated cost of the first unit of 50,000 hp. is \$4,630,000, this figure including various features of

the development which are properly chargeable to the second and final installations; the second unit of 45,000 hp. is estimated to cost \$3,850,000 and the cost of the third unit of 45,000 hp. at \$1,425,000 additional.

Only \$4,000,000 of utility bonds will be issued for the completion of the first unit, the remaining \$630,000 to be supplied out of returns from the present La Grande power plant. The new bonds will be made a lien against the earnings of the light plant only, and will not be levied against the city general fund.

The project engineers expect to have the first unit of the project completed by Dec. 1, 1925.

The concrete dam, 245 ft. high, with wing walls on either side at the top of the rock canyon on the Skokomish River, will be the important feature of the first construction, and keen competition is expected in bidding for this work. This unit will also include a tunnel around the dam through the rock; a transmission line to Tacoma, a telephone line, and clearing the reservoir basin. In order to take advantage of the absence of water from the canyon bed while the reservoir is filling, the foundation and lower part of a second diversion dam to be constructed in the lower part of the canyon are included in the first project as it will save the cost of a diversion tunnel.

On motion of Mayor A. V. Fawcett, the city council, in an amendment to the bond ordinance providing for the Cushman power development, provided for issuing the bonds in such denominations that the Tacoma public may readily find opportunity to invest in them. There will be \$500,000 of the proposed \$4,000,000 issue put out in denominations of \$100, and as much more in denominations of \$500, the remainder to be issued as \$1,000 bonds. How the bonds will be placed has not yet been decided.

Large Plugs and Receptacles Are Mounted on Switchboard

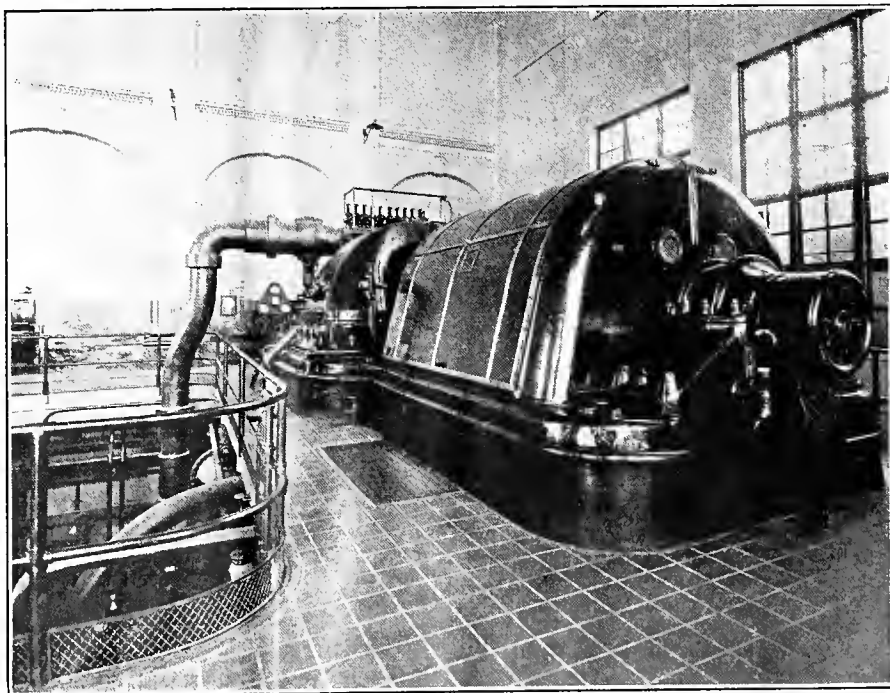
What were perhaps the largest plugs and receptacles ever made for switchboard mounting were recently designed and constructed by the Albert & J. M. Anderson Manufacturing Company of Boston, Mass. The receptacles were of the single pole type and rated at 1,500 amp., 440 volts. The overall length is 13 9/16 in. and the maximum diameter is 7 7/8 in. The total weight for each receptacle is 27 1/2 lb.

The shells are of composition bronze and the collars which show on the face of the switchboard are highly burnished. To accommodate one of these receptacles, a hole 6 1/2 in. in diameter had to be drilled in the slate.

The plugs to accompany these receptacles are of the same rating and are 12 3/4 in. long by 4 1/2 in. in diameter, each plug weighing 10 1/2 lb. A plug and receptacle together weigh 38 lb.

As there was no precedent for so large a plug and receptacle, the Anderson company engineers designed these large devices in proportion to and on the basis of their charging plugs and receptacles which are standard equipment with manufacturers of electrical vehicles. The ample time in which these plugs and receptacles have been in service has been sufficient to afford the most thorough and complete tests; the results given have been entirely satisfactory.

Work is progressing satisfactorily on the power plant of the Longview Public Service Company, at Longview, Wash. Three 6,000-kw. generators will be installed in the first unit, this capacity to be increased as needed. Hog fuel, sawdust and wood waste will be used as fuel. Work is under way on two 300-ft. stacks, each 30 ft. in diameter at the base and 21 ft. at the top.



The new 15,000-kva. turbo-generator unit which was recently put in service in the Kettner and E Street plant of the San Diego Consolidated Gas & Electric Company at San Diego, Calif. This unit not only generates the electric power for the city of San Diego and surrounding country, but is also delivering energy to the Southern California Edison Company.

Change in Corporation Articles Brings Legal Dispute

A petition for rehearing in the case of the State of Washington *ex re*. Whatcom County Railway & Light Company, against J. Grant Hinkle, secretary of state, involving the question as to whether a foreign corporation shall be required to file copies of all material amendments to its original articles adopted since entering the state, has been filed in the Supreme Court by Attorney-General John H. Dunbar. The petition represents that the court's decision, if adhered to, means the complete nullification of the new 1923 law fixing a graduated scale of fees for filing certificates of increase of capital stock.

The Light Company, of Delaware, admitted to the state in 1907, with a capital stock of \$1,050,000, increased its capitalization to \$2,100,000 in 1910, but failed to file such amendment in this state. In 1913 the company reduced its stock to \$2,000, but again failed to file such amendment.

Last June, after the 1923 high schedule of filing fees had gone into effect, the company, to escape the higher annual license fee, sought to file the amendment reducing the capital stock to \$2,000, but Secretary of State Hinkle refused to accept the filing until the previous amendment increasing the capital stock to \$2,100,000 was filed, and the increased new filing fee paid therefor.

Action for mandamus was brought to compel the acceptance of the last amendment without the prior one, and the court, without writing an opinion, granted the application. The state's petition for rehearing comes as a result of this court decision.

Willamette Iron & Steel Works Gets Pipe Line Contract

Contract for furnishing 25 miles of pipe for the Bull Run No. 3 pipe line that will supply water for Portland, Ore., has been awarded to the Willamette Iron & Steel Works, of Portland. The pipe line will lead from Bull Run to the Mount Taber Reservoir, the pipe being in 54 and 56-in. sizes.

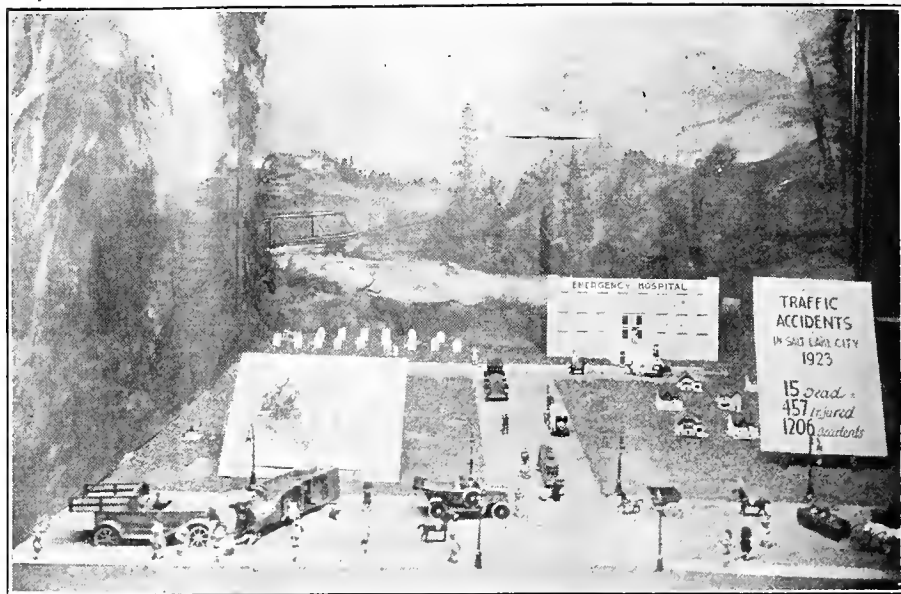
Lock bar pipe will be used in the conduit. The cost of the pipe, as set forth in the contract, amounts to \$2,571,404.

New San Diego Street Lighting System Put in Service

The first unit of the new street lighting program of San Diego, Calif., was lighted up for the first time on Dec. 7, by the Southern Electric Company, the contractors for the system. Eight blocks of Broadway, between Eighth and Sixteenth Streets, the first of the many projects under way to be completed, were flooded with light from 52 new standards.

Each standard is of the concrete type, is 16 ft. to light centers and has mounted on it a 600-cp. lamp encased in special glassware. The new posts are wired with two circuits, the corner posts being kept lighted while the others are cut off at midnight by the central station.

The great demand for concrete posts has made it impossible to get deliveries of sufficient standards to keep up with the city's lighting program. All contractors have experienced the same dif-



Display of the Utah Power & Light Company used in connection with the safety first campaign being conducted in Salt Lake City, Utah.

ficulty. The La Jolla and Coronado street lighting systems have been partly completed and await more standards to finish up.

Several more downtown street lighting projects are under way in San Diego, some of them designed to replace the old-fashioned cluster type of standards with more up-to-date single or double light standards of high candle power intensity.

Municipal Power Measure Passed by Aberdeen Citizens

At the general election held in Aberdeen, Wash., Dec. 1, voters of the city passed the proposed Wynooche power measure, which provides for development of a municipal hydroelectric plant, at a cost of \$2,000,000. The measure was passed by a vote of 1,090 for and 942 against. The project has the endorsement of J. L. Stannard, chief engineer of the Lake Cushman project, of the City of Tacoma, and a report from Ben Turpen, associate of Mr. Stannard, to the city pronounces the Wynooche River basin as one of the best power sites in the Northwest. The project is estimated to have a potential capacity of 27,000 hp.

Mayor H. E. Bailey and members of the city council have pledged themselves, in resolutions passed prior to the election, to secure complete and positive data to determine approximately the cost of the impounding basin, the dam site, water and power rights, and of a distributing system, before any bonds are offered for sale. If the cost of the undertaking proves to be in excess of present estimates, they agree to submit the proposition once more to the voters. The election was preceded by a bitter fight between the supporters of the measure and those opposed to its passage.

The city council of Tacoma, Wash., has approved the purchase by the light department of a plot of ground 120 x 170 ft., adjoining the North End substation, to be used as the site for another substation, needed when the Cushman power project is producing.

Use Utility Company Windows in Safety First Campaign

As a further step in the safety first campaign being conducted in Salt Lake City, Utah, an exhibit of miniature vehicles showing how accidents happen was recently placed in the window of the Utah Power & Light Company. The display showed an intersection of a busy street, with two automobiles colliding, and street cars striking a pedestrian, an automobile and an ice wagon.

A police ambulance was shown rushing a victim to the emergency hospital while another ambulance was on the way to the scene of another accident. At one side of the miniature vehicles was depicted a graveyard with tombstones bearing such inscriptions as: "Gasoline and Moonshine Don't Mix," "Speed Hound," "Reckless Driving," etc.

The city recently began its safety first campaign by arranging for the blowing of whistles at 3:30 o'clock each school afternoon, to warn automobile drivers that schools are being dismissed.

New Railway Substations to Be Built in Los Angeles

The Pacific Electric Railway Company of Los Angeles, Calif., has recently announced that it will erect two new substations in the vicinity of Los Angeles. The growth of traffic has necessitated the installation of the equipment.

One of the new substations will be erected at Second and Toluca Streets in Hollywood and the other will be placed in North Long Beach. The estimated cost of the two stations is \$245,000.

Involving an ultimate expenditure of \$5,000,000 for hydroelectric power development in Cowlitz County, Washington, Charles C. Garland of Tacoma, Wash., has filed an application with the Washington state supervisor of hydraulics for permit to appropriate waters of the Toutle River. The application states that a dam 510 ft. in length and 102 ft. high will be built, giving a storage capacity of 100,000 acre-feet.

Test Efficiency of Lighting in Denver Federal Building

To the intense gratification of the electrical industry in Denver, Colo., the Treasury Department has detailed C. A. Peterson to inspect the 5,000 electric lamps and lighting units in the Federal Building there. Mr. Peterson arrived from Washington early in December and immediately put his foot-candle meter into operation, much to the chagrin of federal employees and newspaper men who tracked him. One of the latter in a local paper described the meter as a hybrid microscope, telescope, and periscope, but the objects of the instrument were carefully detailed; in fact Mr. Peterson's recommendations for higher reflection coefficients and luminaires with better diffusion were outlined in the papers.

According to reports from Denver, this activity and the publicity attendant upon it has aroused the interest of some local commercial firms who have been unmoved in the past on the subject of more efficient illumination. The Electrical Cooperative League of Denver is capitalizing on the activity.

Electric Transportation Medal Awarded Chicago Road

The Charles A. Coffin gold medal, emblematic of distinguished contribution to the art of electric transportation, was awarded to the Chicago, North Shore & Milwaukee Railroad Company at Atlantic City, recently. The award was made before the executives of most of the electric railways of the United States, assembled for the annual convention of the American Electric Railway Association.

In addition to the medal, which was received by Britton I. Budd, president of the Chicago, North Shore & Milwaukee, a check for one thousand dollars was given Louis Homans, the railroad's supervisor of bridges and buildings, for the employees' mutual benefit association, of which he is president.

This is the first award made in the transportation field—a previous one in the power development field having been awarded to the Southern California Edison Company—by the Charles A. Coffin Foundation, which was established in December, 1922, by the General Electric Company to provide encouragement and recognition for notable achievements in electrical development. The competition was open to all electric traction lines in the country, both urban and interurban, and a number of them entered it.

P.C.E.A. Men Address San Diego Electric Club Members

Wm. H. ("Bill") Talbott fired the first guns for the 1924 Pacific Coast Electric Association Convention at the Dec. 4 meeting of the San Diego Electric Club when he opened a campaign for memberships in the association among San Diego electrical men. A. E. Holloway, chairman of the commercial section, aided and abetted Mr. Talbott by presenting an outline of the work of the Pacific Coast association and especially of the work of the commercial section.

With L. M. Klauber, general superintendent of the San Diego Consolidated Gas & Electric Company, as president of the Pacific Coast Electric Association, the 1924 convention of the associ-

ation will probably be held in San Diego, it was announced, and San Diego is determined to have a good showing in the association membership. The response to Mr. Talbott's appeals is said to have been very encouraging for a large local membership.

C. C. Bradford, construction superintendent of the Riter-Conley Company, in charge of erecting the new 6,000,000-cu. ft. gas holder in San Diego, explained construction details and gave statistics regarding the new holder in a brief talk.

Guests at this meeting were D. H. Perkins, T. P. Garrett, and Chris Goldkamp, of the power company, A. J. Schoch, assistant superintendent of equipment of the street railway company, and C. H. Paulin, Westinghouse Electric & Manufacturing Company representative from Los Angeles. The meeting had the largest attendance of any noon meeting the club has had this year.

Annual Report of Secretary of Commerce Is Published

The annual report of the Secretary of Commerce has been printed and is now ready for distribution. The present volume is the eleventh report of the same nature and has been transmitted to Congress.

The report is grouped under five main headings and gives a comprehensive idea of the work done by the department during the past year. The sections under which the report is grouped are: General Economic Situation During the Fiscal Year; Administrative Work of the Department; Investigations into Various Economic Problems in Pursuance of the Organic Act; Legislation Needed; and Special and More Detailed Reports of the Different Bureaus and Divisions of the Department and Special Recommendations of Their Directors.

Los Angeles Electrical Men Hear S.E.D. Vice-President

Forty leaders of the electrical industry in Los Angeles, Calif., honored William L. Goodwin, operating vice-president of the Society for Electrical Development, Inc., of New York, and Samuel Taylor, secretary, Pacific Coast Electrical Association, and Pacific Coast manager, Society for Electrical Development, Inc., at a luncheon at the Jonathan Club on Dec. 5. Among the speakers were W. L. Frost, who presided as chairman, and Mr. Taylor, who explained the reasons for Mr. Goodwin's visit to the Pacific Coast at this time.

Mr. Goodwin spoke at length on the plans and scope of the work which the Society for Electrical Development, Inc., is doing and their plans for the future. He also outlined, for the benefit of those present, the reasons for the existence of the Society and the work which had been accomplished in the past and of the cooperation which the Society is extending at the present time, to the various electric clubs and leagues throughout the country.

Prof. F. C. Palm, of the history department of the University of California, was the speaker at the meeting of the Oakland Electric Club, held at the Hotel Oakland, Oakland, Calif., Dec. 10. Professor Palm spoke on "Present Conditions in Europe."

Utility Company Employees Name Officers

Officers have been elected by the Parent Body of the Pacific Service Employees' Association to serve for the ensuing year. R. W. DuVal, San Francisco, was elected chairman; W. D. Skinner, Oakland, vice-chairman; Miss B. J. Dale, San Francisco, secretary; J. C. Carmody, executive secretary and treasurer. On the executive committee, H. J. Smith, Van E. Britton, W. R. Baker, and W. N. Munro were elected.

This association, which is comprised of a paid-up membership of 6,000 employees of the Pacific Gas and Electric Company, has been organized for the past six years. Twelve territorial sections are maintained covering the various divisions of the state in which the Pacific Gas and Electric Company operates. Each of these sections maintains its own organization consisting of local employees of the company.

Successful Customer Ownership Drive Held in Colorado

The first customer ownership campaign of the newly merged Public Service Company of Colorado is said to have been one of the most successful campaigns of its kind ever staged. All records for similar campaigns in the Doherty organization were broken and according to Clare N. Stannard, vice-president and general manager of the company, the fondest hopes and expectations of company officials were shattered as indicated by the fact that more than double the number of shares provided in the original allotment of stock were sold inside of ten days.

Over 5,500 customers purchased stock in the amount of 16,591 shares. Sales were all made through employees of the company or by the electrical industry which was represented in the campaign by the Electrical Cooperative League of Denver.

The operating department with V. L. Board, general superintendent, at the head, led all divisions in the number of shares sold and was followed by the commercial department organization with R. G. Gentry in charge. Jack Barker, purchasing agent of the company, won the prize for high individual sales with a record of nearly 4,000 shares.

Appropriation of \$500,000 from the Skagit River construction fund, to cover current operations in building the first 50,000-hp. unit of the hydroelectric plant in Whatcom County, Washington, was approved by the Seattle city council finance committee recently. The sum will come out of the \$11,000,000 appropriated for the work, and will leave a balance of about \$896,000 in the fund, to be available for completion of the power plant and of two substations in Seattle.

According to a report of J. D. Ross, superintendent of the municipal light department of Seattle, Wash., 891 meters were installed in the City of Seattle during October, a record in the city's history. A total of 224 electric ranges was also put into use, Mr. Ross's report shows. Installation of the new meters will increase the city's electric current load by 5,000 kw.

Meetings

Jobbers Hold Quarterly Meeting at Del Monte, Dec. 6-8

The Pacific Coast Electrical Supply Jobbers' Association held its fourth meeting of the year at Del Monte, Calif., Dec. 6, 7 and 8. Coincidentally, there were held also a meeting of the Advisory Committee of the California Electrical Cooperative Campaign and a meeting of the "Smiles" sub-committee of the Public Relations Committee of the Pacific Coast Electrical Association.

In accordance with the usual custom, the electrical jobbers had a series of closed meetings at which matters of intimate interest were discussed. The open meeting, to which all were invited, was held on the morning of Dec. 8. The first speaker was R. A. Balzari, who spoke briefly on the subject of the so-called "Smiles" campaign, a movement inaugurated by a sub-committee, of which he is chairman, of the Public Relations Committee of the Pacific Coast Electrical Association.

Following Mr. Balzari came W. L. Frost of the Southern California Edison Company, who made an exceptionally effective presentation of the new merchandising policy of the Southern California Edison Company. The importance of Mr. Frost's remarks necessitate a more full presentation of this matter, which will appear in an early issue of the Journal of Electricity.

Mr. Frost was followed by W. L. Goodwin, operating vice-president of the Society for Electrical Development, Inc., of New York City. Mr. Goodwin spoke of the purposes for which the Society was organized and the experiences they had had in fostering and developing the cooperative movements for the benefit of the electrical industry in the eastern territory. "The Society," said Mr. Goodwin, "has established headquarters on the Pacific Coast, in the Rialto Building, San Francisco, in charge of Samuel H. Taylor, who has been connected with the Pacific Coast Electrical Association for some time. The purpose of opening these offices is to afford means of making an intimate study of the many cooperative movements now under way on the Pacific Coast so that the entire electrical industry throughout the country may have the benefit of whatever is learned in this way. At the same time the Society will be in a position to extend to such movements here the benefit of the experience of the Society in other sections of the United States."

It is proposed that local electrical clubs shall be organized in every population center on the Pacific Coast large enough to support such a club, the Society helping in the institution of these organizations, giving them the benefit of its experience in similar activities.

Mr. Goodwin's remarks received close attention throughout, and the session closed at 12 o'clock noon.

Among those who attended the meeting were W. L. Goodwin, Samuel H. Taylor, R. A. Balzari, Ray Murphy, Clarence Thompson, Carl Heise, J. H.

Jamison, A. M. Irwin, C. C. Hillis, W. E. Berry, T. E. Bibbins, D. E. Harris, Sam Russell, Fred Todt, Harry Garbutt, Earl Fisher, E. O. Shreve, F. E. Boyd, T. M. Simpson, Harry Dailey, H. E. Sander-son, W. M. Deming, J. S. Trittle, Garnett Young, Earl Alexander, J. H. Lavenson, W. L. Frost, H. H. Courtright, A. Emory Wishon, H. H. Walker, Curtis Hawley, V. C. Hartley, O. W. Lillard, H. B. Squires, C. E. Sherman, Harry Turner, W. S. Greenfield, Wesley Todt, Harry Woodward, Glenn Arbogast, Ben Holst, Newton W. Graham, and Charles List-enwalter.

Rocky Mountain N.E.L.A. Is to Hold Quarterly Meeting

A quarterly meeting of the Rocky Mountain Division of the National Electric Light Association is scheduled to be held in Denver, Colo., on Dec. 18, according to D. C. McClure, division president. This is the first meeting of its kind ever to be held in the Rocky Mountain territory and is to be held as the result of a recommendation made at the annual convention of the association at Glenwood Springs last September.

A joint session with the Rocky Mountain Committee on Public Utility Information, an offshoot of the divisional organization although entirely separate, will be held at the Denver Athletic Club, starting in the morning and continuing throughout the day. E. A. Phinney of Golden, Colo., is in charge of the program while George E. Lewis, manager of the Rocky Mountain Committee, is looking after the attendance.

Entertainment has been planned by the utility companies of the city starting with a luncheon at the Denver Athletic Club with Ernest Stenger, receiver of the Denver Tramway Company, as host; a dinner with stunts provided by employees of the Mountain States Telephone & Telegraph Company of which Ben S. Read, president of the Colorado

COMING EVENTS

Rocky Mountain Division, National Electric Light Association—

Quarterly Meeting—Denver, Colo.
Dec. 18, 1923.

Rocky Mountain Committee on Public Utility Information—

Denver Colo.—Dec. 18, 1923

Public Service Association, is the head, and a theater party at night to be given by the Public Service Company of Colorado.

The committee in charge of this part of the program consists of V. L. Board, E. A. West, John F. Greenawalt, and S. W. Bishop. Plans are being made to accommodate about 75 guests with representation from Wyoming and New Mexico, where the next quarterly meetings will be held.

Members of the Idaho Public Utilities Commission recently returned from an inspection trip to practically all power plants of the Idaho Power Company in southern Idaho. Those making the trip were J. M. Thompson, president of the commission; Will H. Gibson and Fred L. Graves, commissioners, and John Kopelman, engineer.

Cooperative Campaign Meeting Is Held at Del Monte

The California Electrical Cooperative Campaign held an open meeting at Del Monte, Calif., on the evening of Dec. 6. R. E. Fisher presided and V. C. Hartley, executive secretary, acted as secretary of the meeting.

After passing upon a few matters of routine business, the speaker of the evening, W. L. Goodwin, operating vice-president of the Society for Electrical Development, Inc., of New York City, was introduced. Mr. Goodwin gave an entertaining and instructive discussion on cooperative movements, as conducted by the Society in the eastern territory. His discussion was illustrated by exhibits of leaflets and booklets accompanied by samples of supporting newspaper advertising showing how numerous campaigns for the stimulating of the use of electricity have been inaugurated and carried through to successful conclusion.

Mr. Goodwin expressed a desire on the part of the Society, through its recently opened San Francisco offices in the Rialto Building, to supply to new cooperative movements now under way, or that may be inaugurated on the Pacific Coast, full data in intimate detail and complete instructions as to how to inaugurate similar campaigns here on the Pacific Coast. He stated that the Society would go to the extent of furnishing all literature and advertising copy and instructions to field operatives for this purpose.

The meeting was well attended. Many of the most prominent manufacturers, jobbers, contractor-dealers and central station executives were present.

Los Angeles Electric Club to Entertain Kiddie Koop

The Electric Club of Los Angeles, Calif., at its regular meeting on Dec. 24, will entertain the children of the Kiddie Koop Orphan Home, as has been the custom since the organization of the club. At this meeting, the ball room of the Biltmore Hotel will be appropriately decorated for the occasion, with an immense Christmas tree in one corner of the room and with a fireplace built with bricks purchased by the individual members of the club. Santa Claus will enter the room from this fireplace. Ladies will be present at this meeting to assist the men in taking care of the kiddies and to look after their welfare.

The kiddies have all written to Santa Claus expressing their desires, which will be granted by Santa Claus on the twenty-fourth. Those in charge of the various committees are as follows: H. L. Harper, general chairman; Frank Weiss, finance; H. E. Sherman, Jr., arrangements and decorations; R. D. Manahan, transportation; R. Lockart, entertainment; K. E. Van Kuran, presents, and Paul D. Howse, Santa Claus.

The Ogden, Utah, chapter of the American Association of Engineers is making a successful membership drive, according to the various committee reports submitted to the chapter at the weekly luncheon held on Nov. 23. H. J. Craven presided at the luncheon, at which thirty engineers were present. The drive will continue until engineers of the various classes are members of the chapter.

Manufacturer, Dealer and Jobber Activities

Altorfer Brothers Company, Peoria, Ill., has recently published a 20-page booklet entitled, "How 437 Dealers Brought Customers to Their Stores." The booklet is designed to give dealers information that will aid them in selling washing machines. Many suggestions for increasing sales and for attracting customers into the store are included in the text of the booklet. Illustrations of attractively designed window displays and store interiors are also a part of the subject matter. Copies of the book may be obtained from the manufacturer.

Templeton, Kenly & Company, Ltd., Chicago, Ill., has recently announced that almost immediately following the earthquake in Japan cablegrams for pole pulling and straightening jacks were received by it. The equipment will be used in the work of rehabilitating the power and telephone lines in Japan.

Maydwell & Hartzell, Inc., a San Francisco firm representing eastern manufacturers, is now located at 158 Eleventh Street, at the corner of Natoma Street. The company is considering the opening of a branch office in Los Angeles. The concern has recently been appointed distributors for the following companies: Hazard Manufacturing Company, Wilkesbarre, Pa.; L. D. McFarland Company, Ltd., Sandpoint, Idaho; Miniature Breaker Company, Long Island, N. Y.; and the Park Metalware Company, Orchard Park, N. Y.

The Thermal Syndicate, Ltd., New York, N. Y., has recently issued a 16-page booklet entitled, "Vitrosil Data." The booklet contains information regarding the general characteristics of the company's line of ware.

The California Wire Company, of Orange, Calif., has recently secured orders for weatherproof wire which call for over five million pounds of the company's product. The Southern California Edison Company has ordered 2,035,000 lb.; the Pacific Gas and Electric Company, 1,750,000 lb.; and various other utility companies on the Pacific Coast have ordered quantities varying from 100,000 lb. to 500,000 lb. The company's plant at Orange is now in operation 24 hours a day 6 days a week.

Garnett Young & Company, of San Francisco, Calif., and the **Pratt Chuck Company**, Frankfort, N. Y., have announced that after Jan. 1, 1924, the Pacific Coast agency of the New York manufacturer will not be handled by Garnett Young & Company. The San Francisco firm has had the Pacific Coast agency for a number of years.

Uehling Instrument Company, Paterson, N. J., has issued Bulletin No. 150, which gives a full description with photograph of a combined barometer and vacuum recorder for checking steam turbine and condenser performance. The bulletin also contains a sectional drawing and full sized reproduction of actual chart. The instrument operates on the hydrostatic principle and employs no diaphragms, tube springs or multiplying level mechanisms.

The **Standard Underground Cable Company**, manufacturer of bare and insulated electrical wires and cables and accessories, whose present Pacific Coast factory has been located in Oakland, Calif., since 1898, is completing the erection of a new and enlarged concrete and steel factory on a large tract surrounded by paved streets in Emeryville, Calif., and adjoining and connected with the Southern Pacific Railway main line. The main factory building is a two-story reinforced concrete structure 60 ft. wide by 320 ft. long, arranged for a third-story addition when required. That building adjoins a steel and concrete crane-bay approximately 50 ft. wide by 340 ft. long and 45 ft. clear height, adjoining a private railroad siding along the greater length. Separate from the main factory building are a power and transformer house 40 ft. x 80 ft., and carpenter and machine shop 30 ft. x 60 ft., both of reinforced concrete construction. The crane bay of the factory will be served by a 10-ton electric bridge crane, and the two-story section and shipping platform, by a two-ton cab-operated monorail. The power house contains two Stirling type water tube boilers equipped with automatic oil burners, which will be used for necessary heating and processing. All the manufacturing equipment, however, is electrically operated throughout.

California Corrugated Culvert Company, West Berkeley and Los Angeles, Calif., has issued an attractive booklet entitled "The Story of Pure Iron." The book is illustrated and gives interesting information on the production of pure iron and on its applications. Photographic reproductions show the service to which pure iron products may be put and the results of years of employment of this metal in various exposures.

The **Nichols Electric Furniture Company**, Bennington, Vt., has issued a circular on electrically wired furniture. This furniture is shipped from the factory completely wired and ready for use. It offers attractive merchandising possibilities for dealers, particularly at the holiday season. The line includes wired tea tables, serving cabinets, tables and dressers. Descriptive circulars will be furnished upon request to the factory.

H. B. Squires Company, San Francisco and Los Angeles, Calif., has been appointed California agent for the **Packard Electric Company**. Stocks of power and distributing meters and of series regulating meters for series street lighting service will be carried at San Francisco.

George A. Gray Company, San Francisco, Calif., has been appointed agent for the **Pratt Chuck Company**, Frankfort, N. Y.

The **General Electric Company** has developed and will have in production about Jan. 1, 1924, a new design single phase, induction voltage regulator emphasizing several desirable features in design. Among these are a tank which is highly resistant to rupture; a mechanical structure of increased rigidity with a view of decreasing noise; coils with improved bracing to prevent insulation troubles due to line short circuits; greater accessibility of operating mechanism, and improved voltage regulation due to the more rapid correcting of voltage changes.

Century Electric Company, St. Louis, Mo., has issued a new catalog on its squirrel cage induction polyphase two and three phase motors. These are known as "Type SC" and are furnished in $\frac{1}{4}$ to 15 hp.



This intrepid cyclist, back in the days when bicycle races were, won the first prize in the annual grind over the ungraded road and trail between Tacoma and Olympia, Wash. His time for the 32-mile stretch was 1 hour and 32 minutes. Since achieving fame in this event, F. W. Rust, the winner of the aforementioned race, has entered the electrical business in Seattle and is now president of F. W. Rust & Company, Inc. As the "sport speedster model," despite the fact that it is equipped with air cushion seat and electrical siren, is not needed in the electrical contracting business, Mr. Rust has abandoned his bicycle and now devotes his entire time to the electrical industry.

Personals

D. D. Sturgeon, a prominent electrician of Denver, Colo., has been elected vice-chairman of the Electrical Co-operative League of that city. In 1895 Mr. Sturgeon moved from his home in Newark, Ohio, to Denver and immediately entered the service of Albert Sechrist, the first lighting fixture spe-



D. D. STURGEON

cialist in the Rocky Mountain region. During the following seventeen years Mr. Sturgeon passed through every department of that firm, which had grown to be the largest fixture manufacturing concern in the West. Mr. Sturgeon, in addition to memberships in the League, American Institute of Electrical Engineers, the Denver Electrical Contractors' Association, and Master Builders' Association, takes an active part in the Rotary Club, Motor Club, Press Club, and the Denver Civic & Commercial Association.

A. F. Combs, of the Automatic Electric Company of Chicago, Ill., was a recent Los Angeles visitor as was H. C. Webb of the Commercial Department, El Paso Electric Railway Company of El Paso, Texas, and A. L. Dunmire of the Line Material Company of Oakland, Calif.

Andrew C. Stayert, a prominent auto accessory dealer in Denver, Colo., has reorganized the Thor Shop in that city and has moved it to a prominent corner location in the building of the B. K. Sweeney Electrical Company, 13th and Broadway, Thor distributors for the Rocky Mountain region. Formal opening of the new establishment was made Nov. 24.

George H. Sicard, vice-president of the Pratt Chuck Company, Frankfort, N. Y., is a recent visitor to the Pacific Coast. He spent a week in San Francisco and some time in Los Angeles, then went to Seattle, Portland and other northwestern cities, returning from there to the factory.

George B. Sanford, division manager of the Great Western Power Company at Sacramento, Calif., was in San Francisco recently to attend the quarterly meeting of the Western Irrigation Equipment Association.

Miss J. Frances Emans, of the Southern California Edison Company, Los Angeles, Calif., has been appointed chairman of the Women's Public Information Committee of the Pacific Coast Electrical Association. The first meeting of the committee will be held in San Francisco, Calif., on Dec. 29, 1923.

F. J. Airey, district manager, Pacific States Electric Company; C. E. Listenwaller, Listenwaller & Gough; J. L. Kline, president and general manager, Western Light & Fixture Company; A. B. Vandercook, sales manager, Western Electric Company; C. E. Spalding, General Electric Company; N. W. Graham, president, Graham-Reynolds Electric Company; C. B. Hall, president, Illinois Electric Company; H. E. Sherman, Jr., vice-president and sales manager, Illinois Electric Company; W. L. Frost, manager commercial department, Southern California Edison Company; P. H. Booth, Pacific Coast manager, Edison Electric Appliance Company; J. H. Jamison, manager merchandising division, Westinghouse Electric & Manufacturing Company, were among the Los Angeles electrical men visiting the quarterly meeting of the Pacific Coast Jobbers' Association at Del Monte on Dec. 6, 7 and 8.

William Porter White has been appointed to act as personal assistant to M. O. Troy, new executive assistant manager of the central station department of the General Electric Company, Schenectady, N. Y. His headquarters will probably be at Schenectady in common with Mr. Troy.

G. G. Jeter, H. F. McRell and Clinton Jones have been appointed sales managers in the central station division of the General Electric Company, Schenectady, N. Y. Mr. Jeter will have charge of transformer accessories, advertising and publicity; Mr. Jones will have supervision of power transformers, and Mr. McRell, distribution transformers.

Al. Smith, sales manager of the Walker-Pratt Manufacturing Company, Boston, Mass., was in Salt Lake City to attend the meeting of the Commercial Section of the National Electric Light Association.

H. I. Klehm, district agent of The Washington Water Power Company at Ephrata, Wash., is spending a few days in Spokane.

Fred S. Mills, representative of the National X-Ray Reflector Company, Chicago, Ill.; L. A. Hobbs, representative of the Brascolite Manufacturing Company, St. Louis, Mo.; E. P. Markee, manager Edison Lamp Works of the General Electric Company, Los Angeles, Calif.; Frank van Gillaue, illuminating engineer, Western Electric Company, Los Angeles, Calif.; W. A. Alden, illuminating engineer, Westinghouse Electric & Manufacturing Company, Los Angeles, Calif.; D. C. Pence, manager lamp department, Illinois Electric Company, Los Angeles, Calif., and T. H. Hunter, illuminating specialist, Pacific States Electric Company, Los Angeles, Calif., were among those from Los Angeles attending the meeting of the Illuminating Engineering Society of the Pacific Coast, held in conjunction with the jobbers' convention at Del Monte.

Harry Byrne, president of the North Coast Electric Company, Seattle, Wash., is a recent visitor to San Francisco, having stopped there on his way to the convention of the Electric Supply Jobbers' Association at Del Monte, Calif.

R. W. Atkinson has been appointed chief engineer of the Standard Underground Cable Company, Perth Amboy, N. J.

P. E. Matteson, sales manager of the Intermountain Electric Company, Salt Lake City, Utah, has returned from a ten-day trip through Idaho.

W. H. Millmore, who has been employed by the Great Western Power Company for the past nine years and who has recently been chief operator of the North Beach plant of that company, has left for Papeete, Tahiti, where he will install a power plant and introduce to that community the use of electrical appliances.

Guy W. Faller, assistant general manager of the Denver Gas & Electric Light Company, Denver, Colo., has been elected as assistant vice-president of the newly formed Public Service Company of Colorado. This company was formed by a combination of the Denver Gas & Electric Light Company and the Western Light & Power Company.

G. J. Shurts has been appointed production manager of the lead cable department of the Standard Underground Cable Company, Perth Amboy, N. J.

James F. Pollard, the recently appointed vice-president and general manager of the Coast Valleys Gas & Electric Company, graduated from the University of California, class of 1912, as Bachelor of Engineering. From that year to 1915 he was employed in the engineering department of the Pacific Gas and Electric Company and spent some time on the Drum Development of that company. From 1915 to 1918 he was assistant engineer on the California Railroad Commission, working in the gas and electric rates department. In 1918 he was appointed commercial manager of the Sierra and San Francisco Power Company and the Coast



JAMES F. POLLARD

Valleys Gas & Electric Company and was assistant to Capt. H. F. Jackson, who was then president of both companies. From 1920 to November, 1923, he was vice-president in charge of operations of the Coast Valleys Gas & Electric Company. When the H. M. Byllesby Engineering Company, of Chicago, Ill., bought the common stock of the Coast Valleys Gas & Electric Company, thereby acquiring ownership of the company, Mr. Pollard was appointed vice-president and general manager by Mr. Byllesby.

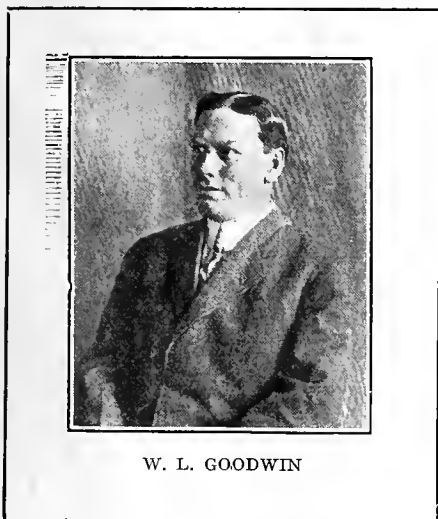
A. T. Parsons, advertising manager for the Pelton Water Wheel Company, San Francisco, Calif., has resigned from that company to join the agency force of the Equitable Life Assurance Society, with headquarters at 315 Montgomery Street, San Francisco.

S. W. Bishop, manager of the Electrical Cooperative League in Denver, addressed the Master Plumbers' Association in that city, Dec. 3, on cooperative development within an industry, the object being to assist the plumbers and supply houses in the establishment of a sanitary development league.

Clifford Bartlett, district manager of the Pacific Gas and Electric Company, Willows, Calif., has been made assistant manager of the North Bay division of that company, with headquarters at San Rafael, Calif. Mr. Bartlett joined the force of the Northern California Power Company (now a part of the Pacific Gas and Electric Company) at Redding, Calif., on Oct. 1, 1906. In February, 1910, he was made district manager at Willows, which position he has held ever since.

Prof. Osborne, of the University of Washington, Seattle, Wash., spoke on "Illumination as Applied to Workshop and Factories" before the Electric Club of Seattle recently.

W. L. Goodwin, operating vice-president of the Society for Electrical Development, Inc., is spending some time on the Pacific Coast. Mr. Goodwin has always been one of the foremost in the ranks of progressive workers for the entire industry and his connection with all branches of the business has been marked for its constructive effort. Mr. Goodwin was born in San Francisco, Calif., and his connection with the electrical business began in that city. He was for some time with the Sterling Electric Company of San Francisco, and its predecessors, and at the time of the formation of the Pacific States Electric



W. L. GOODWIN

Company, in July, 1909, was made vice-president and general sales manager of that company. He remained with the Pacific States Electric Company until 1916 when he joined the force of the General Electric Company at New York, N. Y. In 1920 Mr. Goodwin left the General Electric Company to become operating vice-president of the Society for Electrical Development, Inc., and since that time has devoted all of his efforts to the improvement of general conditions and merchandising methods.

P. H. Booth, sales manager of the Edison Electric Appliance Company, Los Angeles, Calif., has left for the factory of the company at Chicago, Ill., and will also go on to New York. During his trip East Mr. Booth will visit several offices of the company and will return to California in time for the Christmas holiday.

F. J. Airey, district manager of the Pacific States Electric Company, Los Angeles, Calif., just recently returned from an extensive trip to the East.

R. E. Boyle, formerly with the General Electric Company, Los Angeles, Calif., has recently been transferred to the Cleveland, Ohio, office of that company.

W. T. Wyatt has become associated with Guy Cooper, 341 South Western Avenue, Los Angeles, Calif., in the sale of Servel electric refrigeration plants.

Guy Cooper, 341 South Western Avenue, Los Angeles, Calif., has been appointed the Pacific Coast agent for Servel electric refrigerating equipment. He will distribute from the southern city.

B. E. Rowley, of the Edison Electric Appliance Company, Salt Lake City, Utah, has gone to the factory at Chicago to attend the sales convention to be held there. He will spend the Christmas holidays at Winnipeg, Manitoba, and will return shortly after the first of the year.

A. C. Cornell, Denver, Colo., manager of the Western Electric Co., Inc., was the captain of the leading Rotary Club team in the recent Community Chest campaign staged in the mile high city.

R. O. Ashton has been placed in charge of Frigidaire development in the Rocky Mountain region. Mr. Ashton is a factory expert from Dayton and will have headquarters at the Delco Light Company branch in Denver, of which N. B. Acers is the district manager. Local representation in that city has already been secured with the Public Service Company of Colorado.

J. D. Ross, superintendent of the Seattle, Wash., lighting department, recently addressed residents of the Ravenna district of that city on the "Future of Light and Power in Seattle," the lecture accompanied by stereopticon slides.

C. B. Hawley, of the Intermountain Electric Company, Salt Lake City, Utah, was a recent visitor to San Francisco on his way to the convention of the Electric Supply Jobbers' Association at Del Monte, Calif.

E. A. Evans, of the Westinghouse Lamp Company, Salt Lake City, Utah, has just returned from a ten-day trip through Montana.

J. W. Elwood, of the General Electric Company, New York, N. Y., is a recent San Francisco visitor.

H. W. Fisher has been appointed technical director in charge of electrical engineering for the Standard Underground Cable Company, Perth Amboy, N. J. He will also continue as manager of the lead cable and rubber departments of the company.

L. J. Zimmerman, of the Electro Medical Battery Company, New York, N. Y., is in San Francisco on business.

W. W. Jourdin, chief electrical engineer for the Inspiration Consolidated Copper Company, Miami, Ariz., spoke recently before the Globe Luncheon Club on the subject of "The Trend in Electric Power Generation."

N. W. Graham, president of Graham-Reynolds Electric Company, Los Angeles, Calif., and one of the leading electrical men of the West, has just been elected chairman of the Pacific Coast Electrical Supply Jobbers' Association. "Newt" Graham has been connected with the firm of which he is now senior member ever since its organization, nearly twenty years ago, as Holabird-Reynolds Electric Company. About eight years ago this firm, which is one of the oldest electrical supply jobbing houses in Los Angeles, was re-



N. W. GRAHAM

organized under the new name of Graham-Reynolds Electric Company with Mr. Graham as president. In addition to other duties Mr. Graham finds time to serve as a member of the Advisory Committee of the California Electrical Cooperative Campaign and also as a member of the Executive Committee of the Electrical Supply Jobbers' Association of the United States. He is always active in anything that tends to improve conditions within the industry or that will advance the welfare of its members.

Addison N. Clark, electrical engineer, for some time identified with the electrical heating industry as southern California district manager for the Scheeline Manufacturing Company of San Francisco, Calif., manufacturers of Hulbert electro-steam heating equipment, has recently resigned to become sales manager of the Triumph Electric Heating Corporation of southern California with headquarters at 1620 South Flower Street, Los Angeles.

Harry Coombs, of the Bryan-Marsh division of the National Lamp Works, Chicago, Ill., has been in Salt Lake City for about two weeks.

G. R. Randall, of the Salt Lake Electric Supply Company, Salt Lake City, Utah, has returned from a trip to Detroit, Mich.

D. H. Redinger, resident engineer of the Southern California Edison Company at the Big Creek plant, was recently in San Francisco on business.

C. C. Shaw, president of the Lalley Electric Company, Portland, Ore., is a recent visitor to San Francisco.

R. C. Dodd, at present operating superintendent of the Hawthorne Works of the Western Electric Company at Chicago, Ill., has been promoted to be assistant works manager at the new Kearny, N. J., works. This appointment is effective March 1, 1924.

Trade Outlook

San Francisco

Retail trade conditions continue to improve and buying is still heavy. Electrical appliances are in good demand and jobbers' stocks are becoming depleted. Express shipments from eastern factories have in some cases been necessary to fill shortages.

Construction materials are in demand and building shows little indication of reduction.

Finances are good and bank reserves continue to increase. Loans are being liquidated by country correspondents and money is available for industrial and commercial purposes.

Large export shipments of lumber have been noted and prices are firm. Rice crops are all harvested and bid fair to show a substantial profit for growers. The lack of rain has caused some concern among live stock men.

Holiday buying is satisfactory from a retail point of view and now warrants the expectation that it will exceed all previous records. The only lines that have been disadvantageously affected are those of clothing and ready-to-wear garments.

Spokane

Slight changes are noted in general conditions. Due to low price of wheat, farmers show a tendency to hold shipments. However, local flour mills worked at capacity up to Dec. 1.

A reduction in output is looked for among Spokane wood-working plants. Several sharp reductions are reported, especially in plants shipping East.

Building construction is confined to small jobs. The State Highway Department will expend \$5,300,000 next year, a fair portion to be used in eastern Washington.

The Washington Land & Irrigation Company has filed application with the Federal Power Commission for final permit to proceed with development of Priest Rapids on Columbia River, where this company expects to develop important electro-chemical and electro-metallurgical industries. This program should have an important bearing upon the Columbia Basin irrigation project.

Local bond houses have sold the \$2,200,000 issue of Washington Water Power Company's short term 6 per cent coupon bonds, the subscriptions exceeding the issue.

It is estimated that the reserves added to the Bunker Hill mine, Coeur d'Alene district, Idaho, by the discovery of the great lode in the seventeenth level will prolong the mine's life by several years, the size of the ore body and the ore values remaining unimpaired at that depth.

Los Angeles

Electrical retail business in Los Angeles is satisfactory. Local merchants report heavy buying, particularly on the smaller lines of appliances. Major household appliances are also showing satisfactory sales. Electric heaters are the one type of appliance not obtaining

a fair share of sales. This has been due to warm weather prevailing thus far this season.

Sale of radio sets and supplies has increased considerably during the past two weeks and bids fair to outdo previous seasonal business. Sales of water heaters and ranges are progressing well and manufacturers of the former are particularly optimistic over present conditions.

During the month of November, 5,595 building permits valued at \$13,512,042 were issued. Los Angeles bank clearings for the month of November were \$602,754,994.54, the third highest total on record.

Denver

Considerable excitement has been occasioned in commercial circles recently over the opening up of an extensive natural gas field about 75 miles north of Denver. Tests made prior to the capping of the well indicate an ample supply for Cheyenne, Wyo., Denver and all the smaller cities in northern Colorado. Primarily intended to develop the oil structure, if any, the natural gas well, the first of a number being drilled, will be of vast importance in the up-building of the state's industrial life. Considerable business activity has already developed.

November local bank clearings totaled \$146,577,695, an increase of 4.3 per cent over November, 1922. The total gain thus far this year over 1922 is 7.76 per cent.

A total of 570 building permits were issued during November, with an estimated cost of \$1,142,000. The total for the first 11 months of 1923 is \$19,921,050, compared with \$16,706,895 for a similar period last year.

Local electrical jobbers report a steady movement in nearly all lines. The Christmas merchandise business is in the lead, due to special activities of the entire industry in promoting the sale of appliances. Present indications of net profit for the calendar year lead 1922 in several of the larger local supply houses.

Salt Lake City

According to authentic reports, more new money has come into Utah for the creation of producing machinery of all kinds in the past year than any other year in the state's history. Salt Lake City and the surrounding country now appear logically destined for a great forward movement in industry and population, and men usually conservative in their statements are enthusiastic over conditions as reflected in business. The development of the steel and iron industry is one of the important factors in the situation, although there has been increased activity in industry along other lines during the past year. Still greater industrial expansion is anticipated for the coming year.

Mercantile business in Salt Lake has increased so far this year between 15 and 20 per cent over last year, and col-

lections have been better than for several years.

As to the mining situation, this section is particularly fortunate in having mines producing ores carrying a sufficient percentage of lead to allow profitable operations at present metal prices, so the industry was not dealt a staggering blow at the expiration of the Pittman act.

There has been considerable early Christmas buying and electrical dealers are securing a good share of this business.

Portland

Business in the Portland district shows a very gratifying increase for the past month. Bank clearings gained 20 per cent over November, 1922. Lumber exports showed a gain of 150 per cent over the same month a year ago, and the number of building permits issued, 185 per cent.

During November shipping entrants totaled 370,000 tons register, as against 267,000 tons in November, 1922. Wheat, flour and lumber shipments continue very active and export tonnage is high.

The population of the city, given as 258,000 in the 1920 census, has steadily increased since then and is now well up toward 325,000. During the year 7,000 telephones have been added. School attendance has increased 2,000.

The building program shows no apparent slackening, judging from present activity and the plans now being checked by city officials prior to granting permits. Downtown real estate transfers are quite active.

Lumber production is maintained at a high level. The feature of the Douglas fir situation is the placement by the Japanese government of contracts for nearly 100 million feet of lumber to be shipped during the coming month. Domestic trade, both rail and water, has fallen off slightly but is expected to recover shortly. California orders continue to arrive in large volume.

Seattle

Retail trade shows a tremendously increased volume. Retailers predict the holiday trade this year will eclipse previous December records. The demand for better quality of merchandise is apparent, with less criticism of prices. Wholesale trade is satisfactory, although buying is conservative and for short-time needs. Collections are good.

Conditions in the electrical jobbing and retail fields otherwise show no particular change over the past two weeks. Dealers report unusual interest in electrical equipment. The Modern Homes Exposition, with its electrical displays and exhibits, is expected to do much to influence holiday buying in household appliances. Movement in electric ranges is brisk, both for new apartment structures and residences. Stocks are reported in good shape, with prices holding, and collections fair to good.

Local construction has slackened slightly although there is an unusual amount of building under way for this season, due in part to excellent weather conditions. Several important new projects are planned for early beginning, including the new Hotel Winthrop in Tacoma, on which bids will be opened early in December, and which will cost \$1,500,000.

